
This is a reproduction of a library book that was digitized by Google as part of an ongoing effort to preserve the information in books and make it universally accessible.

GoogleTM books

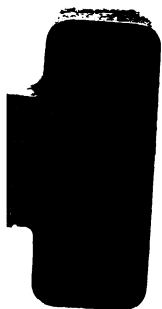
<https://books.google.com>



UNIVERSITY OF CALIFORNIA, SANTA CRUZ



3 2106 01943 0419



ETHNOLOGICAL STUDIES

8



1939

Edited and published by
WALTER KAUDERN, Ph. D.
DIRECTOR, GOTHENBURG ETHNOGRAPHICAL MUSEUM

COPYRIGHT Dr. WALTER KAUDERN

PRINTED IN SWEDEN



GÖTEBORG 1939

ELANDERS BOKTRYCKERI AKTIEBOLAG

CN
2
E 6
v. 8

CONTENTS

	Page
HELEN C. PALMATARY, <i>Tapajó Pottery</i> (with 58 figures and 1 map)	I—136
C. G. SANTESSON, <i>Die Babongo-Zwerge und ihr Pfeilgift</i> (with 2 figures)	137—148
WALTER KAUDERN, <i>C. G. Santesson Dead</i>	149—150

Tapajó Pottery

by

Helen C. Palmatary

University of Pennsylvania, Philadelphia, Pa.

To my Mother.

CONTENTS

	Page
I. <i>Acknowledgments</i>	i
II. <i>Introduction</i>	3
III. <i>Stylistic Analysis</i>	7
a Description of larger vessels	14
b Description of smaller vessels	26
c Study of elements	30
IV. <i>Geographical notes</i> (with map)	53
V. <i>Correlations</i>	59
VI. <i>Summary</i>	121
<i>Bibliography</i>	128

I. Acknowledgments

In the preparation of the following paper which has involved the examination of much museum material and made necessary many requests for information, the writer has become indebted for help of several kinds and in places far distant from each other. First, she wishes to express her appreciation of the interest and kindness of Mr. Horace H. F. Jayne and Dr. J. Alden Mason who made possible the study of the Tapajó collection at the University of Pennsylvania

Museum, and further to thank Dr. Mason for valuable suggestions and the critical reading of the manuscript; she also wishes to thank Miss H. Newell Wardle for her kind and frequent assistance.

In Sweden, she is indebted to Dr. Walter Kaudern for permission to examine the British Guiana and Amazonian collections at the Göteborg Ethnographical Museum, and to Dr. Henry Wassén for much helpful information; she wishes further to thank Dr. Kaudern for the map which accompanies this study. For the privilege of studying the material at the British Guiana Museum, Georgetown, the writer wishes to thank Mr. P. S. Peberdy and also to express appreciation of the helpfulness of Mr. Ram Sar Singh.

At the United States National Museum, the writer is indebted to Mr. Neil M. Judd and Mr. Frank M. Setzler for their help in the study of Antillean and Mound material; at the Catholic University of America, to Dr. John M. Cooper for the opportunity of examining the Tapajó collection; at the American Museum of Natural History, to Dr. Wendell C. Bennett for the privilege of studying the Venezuelan collection; at the Museum of the American Indian, to Mr. George H. Heye and Mr. Kenneth Miller for their help in connection with several collections; at Peabody Museum, Yale University, to Dr. Cornelius Osgood and Dr. Irving Rouse for the opportunity to examine the Antillean material. She wishes also to acknowledge the kind cooperation of Peabody Museum, Harvard University, and the American Philosophical Society.

In particular the writer is indebted to Mr. Curt Nimuendajú who was most generous in sending information concerning his field work in the Tapajó area and his historical research concerning this people. She also wishes to thank Mr. Herbert Krieger and Dr. George C. Vaillant for requested information, and Dr. H. A. Wieschhoff and Miss Elisabeth Schaefer for assistance with translations.

To her friend and associate, Miss Mildred Jantzen, the

writer is indebted for the pen and ink drawings of the Philadelphia collection, and to Dr. D. S. Davidson for his interest and advice throughout the period of research.

II. Introduction

The principal site from which Tapajó pottery has been obtained is Santarem; this is a city located at the mouth of the Rio Tapajoz, a large southern tributary of the Middle Amazon. The Tapajó were a numerous and powerful people when the first Europeans ventured into the heart of South America over the Amazonian highway, but, like many other aboriginal groups, gradually succumbed to the cruelties and superior weapons of the white man. A few remained on the Rio Tapajoz until about the middle of the eighteenth century when the Mundurucús descended upon that valley and eventually became masters of it¹.

The earliest writers on Amazonia appear to have been most impressed by the arrow poison of the Tapajó, and no doubt this product seemed intimately important to wayfarers seeking hospitality or wishing to trade; but Heriarte, writing in the middle of the seventeenth century, mentions their fine pottery, and states it was an important item of barter.² However, with the people gone, the rich black soil around Santarem seems to have excited little interest except to a few geologists, until in 1922 a cloudburst descended upon the vicinity. In this instance the erosive power of the water was such that it cut away a considerable portion of the top soil, thereby disclosing quantities of fine earthenware fragments, highly stylized and often beautifully designed. Fortunately, Mr. Curt Nimuendajú was in Santarem at the time and, due to his efforts, much of this material was saved.³

¹ Métraux, 1928, Vol. II, p. 25.

² Nordenskiöld, 1930, p. 12 et seq.

³ Wassén, 1934, Pt. I, p. 319.

This paper should have been preceded by one which Mr. Nimuendajú has prepared in which he has summed up, from rare sources, all that historical records have to contribute concerning the Tapajó. It should have been preceded also by the map he has made, showing not only the distribution of this culture, but also his other extensive archaeological work in the Amazon Valley. He has been kind enough to send the writer a map of the Tapajó area, and the following summary regarding sites is based upon that and upon his letters. The writer is deliberately making rather general statements, partly because she is hoping Mr. Nimuendajú's own discussion of Tapajó sites and Tapajó culture will soon be available, and partly because the archaeological problem is a complicated one which only he, who has done the field work, can explain to advantage.

As has been previously stated, Santarem is the principal Tapajó site. With regard to the archaeological importance of this locality, it may be best to quote directly from Mr. Nimuendajú's letter of October, 1937. He says:

... Der ganze noch heute »Aldea« genannte Stadtteil steht auf einer stellenweise über meterdicken Terra preta die sich längst des Tapajozufers erstreckt und den reichsten Fundplatz dieser Kultur darstellt. Sie setzt sich aber noch weit in den gegen den Amazonas zu gelegenen Teil der Stadt hinein fort. Auch liegen die Terras pretas durchaus nicht ausschliesslich auf dem Hochplateau sondern zum Teil auch unmittelbar am Ufer von Nebenseen des Tapajoz ...

In addition to the immediate vicinity of Santarem, there were Tapajó sites as far up the right bank of the Rio Tapajoz as Aramanahy and numerous adjacent inland sites; east of Santarem, Tapajó sites seem to have been close together as far as Taperinha, beyond which point they become scattered, the eastern limits of the culture appearing at Bocca do Coaty, on the Rio Jaraucú, a tributary of the Lower Xingú. On the left bank of the Tapajoz there was a site at Boim; west of Santarem there were numerous Tapajó sites on both banks of the Rio Arapiuns, a tributary of the Tapajoz which enters

it a little to the northwest of Santarem; they were even closer together in the Lago Grande de Villa Franca region, particularly on the south shore of the lake. The western limit of this culture was at Serra de Parintins on the Amazon, where Mr. Nimuendajú found Tapajó and Konduri pottery mingled in the same site.

North of the Amazon the Tapajó appear to have been much less conspicuous, or perhaps the sites have not yet been located. Mr. Nimuendajú's map shows a few to the east and west of Monte Alegre, but his letter states that between Monte Alegre and Obidos he has found nothing.

The culture limits designated by these sites represent a considerable territorial expanse, most of which is directly east, west, and south of Santarem. Mr. Nimuendajú states that the Tapajó were not the only contributors to this culture but merely the principal ones. This is another problem which only he has the information to clear up. He also points out that in the section of Santarem known as Aldea, there is a small field the ceramics of which differ markedly both in material and design from that of the Tapajó, and are similar to Arawak pottery of the Rio Urubú near Silves. These facts help to explain the great variety of design in the ceramics to be studied.

Before considering the archaeological material from this area, it may be well to call attention to certain Tapajó culture traits already discussed by Nordenskiöld:

First, this people did not use manioc but employed maize in the making of their beer and farina.

Second, they had a peculiar method of disposing of their dead:

... Lorsqu'un des leurs mourait, ils conservaient son corps dans un ossuaire, et quand la chair était pourrie, ils pulvérisaient les os et mélangeaient cette poudre à la chicha qu'ils buvaient. Chez un peuple logeant ses morts dans les estomacs de leurs proches, on ne peut guère s'attendre à trouver des tombes et nous pourrions, en effet, constater que, malgré les recherches prolongées de Nimuendajú

on n'a malheureusement pu en découvrir un seule sur le Rio Tapajos inférieur.¹

One of the means by which Mr. Nimuendajú has determined the limits of the Tapajó area is by the finding of urn burials, and in these there have been no traces of Tapajó ceramics. To the south, urn burials appear at Altamira on the Rio Xingú, at Brazilia Legal on the Rio Tapajoz, and at Conceição on the Paraná do Ramos. Mr. Nimuendajú states that the Konduri, who were the immediate neighbors of the Tapajó to the west, and across the Amazon to the northwest along the Rio Trombetas, probably disposed of their dead in much the same way as the Tapajó did, since he has never found any graves in their territory. Thus there was a considerable area, part of it north, and part of it south of the Middle Amazon, in which the dead were apparently disposed of by other means than burial.

A third important feature of their culture is that they practiced a certain amount of mummification:

Nimuendajú emprunte à Betendorf et à João Daniel un fait très intéressant: les Indiens Tapajos conservaient les cadavres séchés de leurs ancêtres tels que des momies. Betendorf parle d'un ces cadavres séchés qui était considéré comme *monhangarypy*, le «créateur du commencement» (Betendorf traduit le mot par «premier père») des Indiens Tapajos et qui était honoré par des danses et par des offrandes. Le Père J. Daniel raconte qu'en 1682 ces Indiens avaient encore dans la forêt vierge une hutte contenant sept «momies», qui, un certain jour de l'année, étaient ornées, en grand mystère, de vêtements neufs. Dans la même hutte se trouvaient cinq pierres destinées au culte. Chacune d'elles avait un nom et jouait un rôle rituel en rapport avec son appellation. . . . Les missionnaires firent brûler les momies et en jetèrent les cendres dans le fleuve avec les idoles de pierre.²

A fourth trait worth mentioning is their use of the elbow pipe. The writer has no information concerning this feature beyond the presence of two pipe bowls in the collection at the University of Pennsylvania Museum.

¹ Nordenskiöld, 1930, p. 12.

² Nordenskiöld, 1930, p. 14.

Finally, they used arrow poison. Mr. Nimuendajú states this could not have been *curare* since the fatal symptoms recorded by early writers are different from those produced by *curare*.

With these facts in mind concerning their sites and culture traits, we shall now consider the pottery the Tapajó made.

III. Stylistic Analysis

There are four large collections from the Tapajó area: two of these are in Brazil — one at the Museu Goeldi in Belém the other is a private collection belonging to Dr. Carlos Estevão of that city; in Sweden, there is a large collection at the Ethnographical Museum in Göteborg; the fourth is at the University of Pennsylvania Museum in Philadelphia. In addition, there is a smaller but important collection in the Museum of the American Indian, Heye Foundation, New York, and another in the Catholic University of America in Washington; a third is the property of Ing. Carneiro de Mendonça of Rio de Janeiro. Unfortunately the writer has not seen the Brazilian collections, but she has seen those in Sweden and America, and it is upon these that the ensuing study is based, although she has taken into consideration Professor Serrano's discussion of the Mendonça collection.

In the main, the Göteborg collection and the Philadelphia collection run rather parallel as to contents; however in Sweden there are certain large pieces which are different from anything in the American collections, and the reverse is also true. In choosing illustrative matter, the writer has endeavored to show, as far as possible, the variety within the culture.

The basic study was made upon the material in the University of Pennsylvania Museum, but the Stylistic Analysis includes the large pieces in all the collections the writer has seen, and, in addition, fragments and small pieces from the



Figure 1. Santarem. U. of Pa. Mus. *A*, 34-25-182, Ht. 18.5 cm.
B, L-109-5, Ht. 21 cm, *C*, 34-25-173, Ht. 15 cm.

Göteborg, Catholic University, and Mendonça collections which cannot be duplicated in Philadelphia.

While the Stylistic Analysis is an attempt to classify and briefly describe form and characteristics of design produced by the Tapajó, because of the great variety within the culture, it has been necessary to make certain generalizations, which perhaps at some future time can be taken up more



Figure 2. Santarem. Ethn. Mus., Göteborg, 24.16.38. Ht. 19 cm.

in detail. Another complication is that the material in the Pennsylvania collection is obviously not all Tapajó. Some of it is a coarse, white, chalky ware, decorated by a few straight lines; there are some fragments of a coarse yellow ware characterized by many pits, and other minor variations; but the great bulk of the material is the fine, hard-baked, highly stylized pottery of the Tapajó.

The material in the Pennsylvania collection is supposedly from two sites — Santarem and Lago Grande do Cumarua. The only notation concerning the latter is that it is eighty miles northwest of Santarem. Mr. Nimuendajú states that this place is unknown to him. Not any of the large pieces

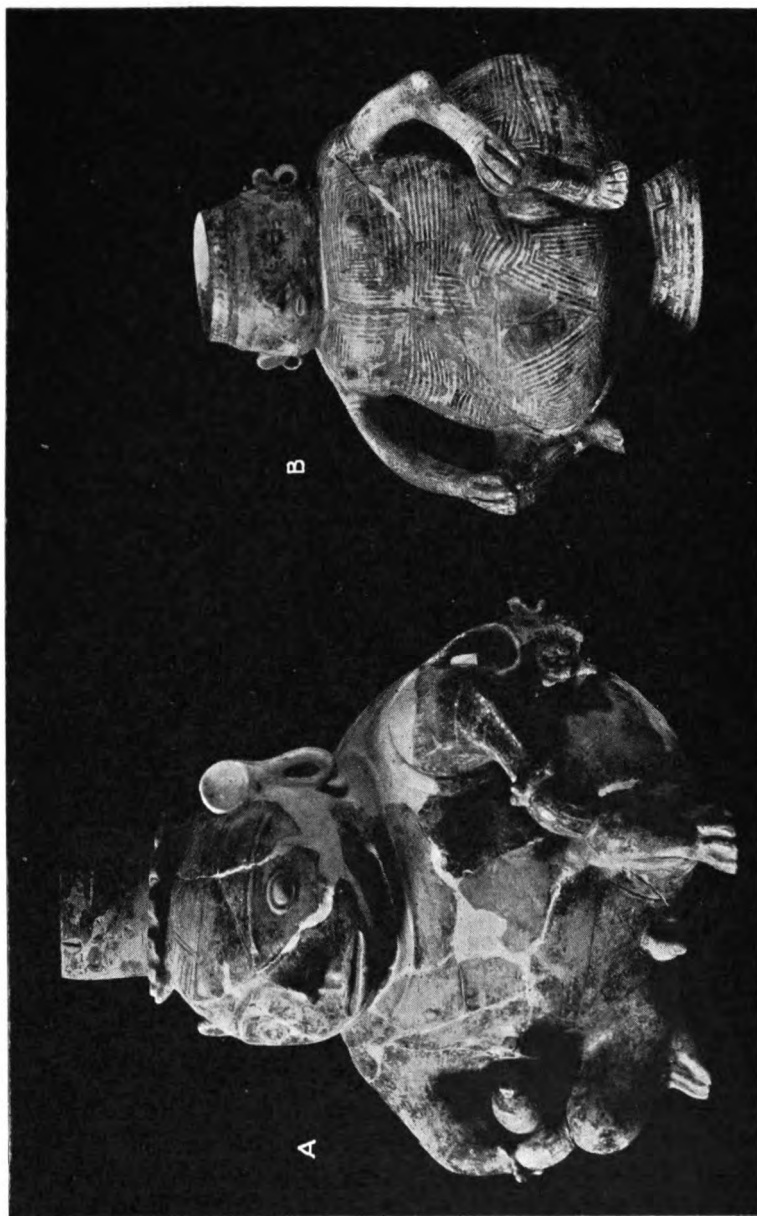


Figure 3. Santarem. U. of Pa. Mus. *A*, L-109-1, Ht. 39 cm. *B*, L- 109-2, Ht. 30 cm.

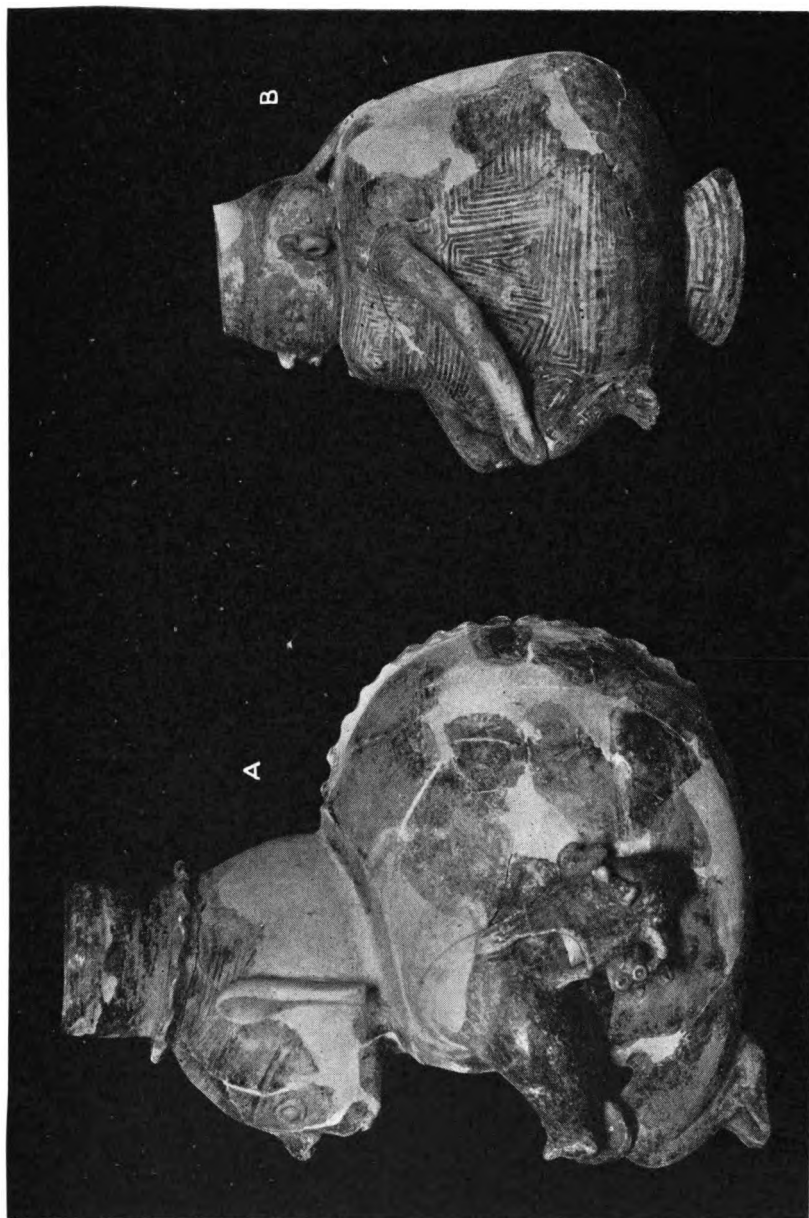


Figure 4. Santa Rem. Same vessels as in fig. 3. Sideview.



Figure 5. Santarem. U. of Pa. Mus. *A*, 34-25-185, Ht. 19.3 cm.
B, L-109-5, Ht. 20 cm. *C*, 34-25-156, Ht. 18 cm.

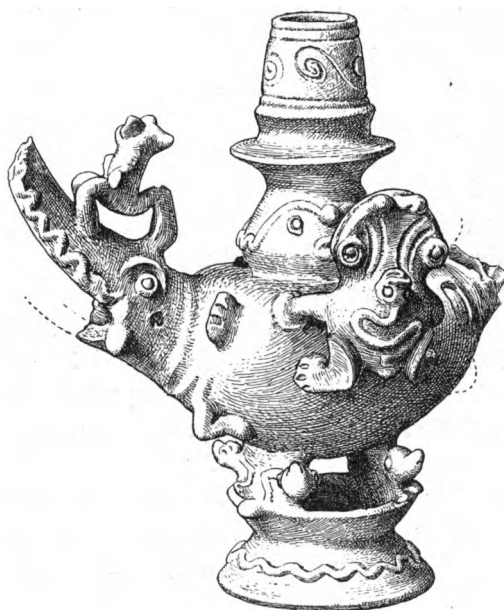


Figure 6. Santarem. Ethn. Mus., Göteborg, 24.16.43, Ht. 18.5 cm.

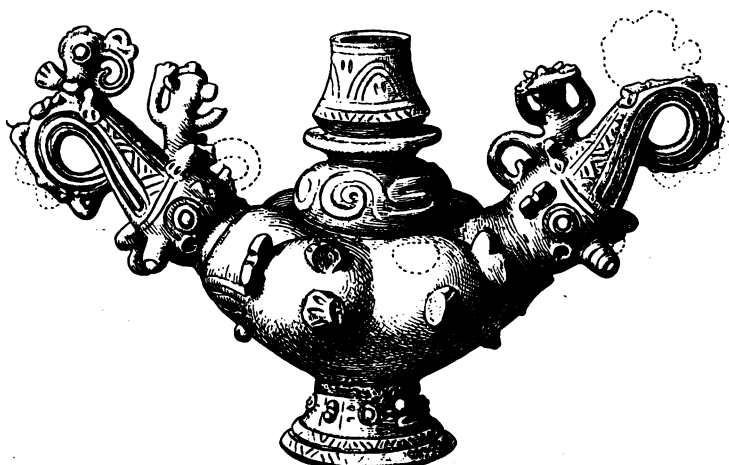


Figure 7. Santarem. Ethn. Mus., Göteborg, 24.16.41, Ht. 18.5 cm.

in the Pennsylvania collection come from this site, although the sherds, in a large measure duplicate in design and technique those from Santarem. Some of the material in the Museum of the American Indian is catalogued as having come from Lago Grande, thirty miles west of Santarem. While this information is indefinite and unsatisfactory, these sites were clearly within the Tapajó area in the region of many lakes northwest of Santarem, where sites representing this culture were numerous.

In the following analysis, the material from Santarem and that from Lago Grande have been grouped together.

Note. For convenience the following abbreviations have been used: Göteborg Ethnographical Museum, GEM; University of Pennsylvania Museum, UPM; United States National Museum, USNM; Museum of the American Indian, Heye Foundation, MAI; American Museum of Natural History, AMNH; Catholic University Museum, CUM; British Guiana Museum, BGM.

a. Description of larger vessels

Type I. Effigy Jars.

a. Male. Figs. 3-A and 4-A.

A squatting painted figure without clothing. There is a knobbed bracelet on each wrist, a rattle in the right hand, and a bag decorated with an animal head is slung over the left shoulder. The ear lobe is distended but contains no ornament. Nose and mouth are well modeled, and the eyebrows are indicated. The eye is the oval-rimmed protuberant form. The neck of the vessel protrudes from the top of the head. Painted red.

b. Female. Figs. 3-B and 4-B.

A female figure seated on a flaring annular base. The entire jar is decorated with black and red concentric rectangles on a light gray background. The ear lobes are distended and without ornament, the hair hangs down the back in two braids. The eye is of the coffee bean variety, and the nose and mouth are crudely modeled. The mouth of the vessel is the open crown of the head.



Figure 8. Santarem. Ethn. Mus., Göteborg, 24.16.42, Ht. 16 cm.

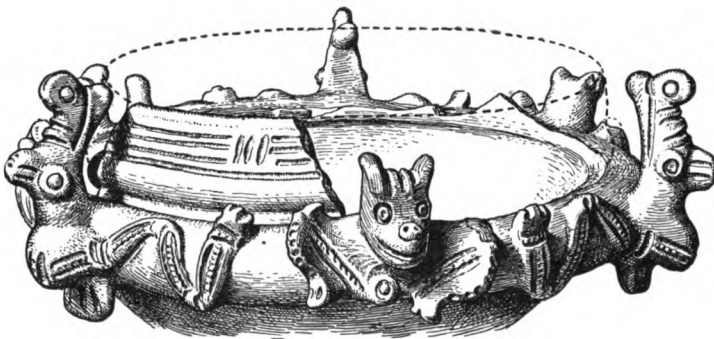


Figure 9. Santarem. Ethn. Mus., Göteborg, 24.16.60, Scale 3/7.

Type II. Caryatid Dishes.

- a. Those supported by true caryatids. Figs. I and II.

The caryatids rest upon medially constricted annular bases and support shallow, round-bottomed bowls, the diameters of the necks being only slightly less than those of the shoulders. The rims are smooth; the necks and bases are decorated with straight and curved incised lines, also with shallow pits. The shoulders are encircled by avian forms modeled in the full



Figure 10. Santarem. Mus. Amer. Indian 16/3505, Ht. 18.5 cm.

round, and resting on a narrow ring which is attached to the bowl proper. In this ring are four perforations, apparently for suspension.

- b. Those having a geometrical support serving a caryatid function. Figs. 5-B and 6.

In Fig. 5-B the body of the vase rests upon two rectangular supports, which, in turn, rest upon a medially constricted annular base, the top edge of which has relief decoration in the form of a bird head and two bird feet. In Fig. 6, the supports are decorated with animal forms. These pieces appear to be a transitional type, having the medially constricted annular bases of the «a» type and the body characteristic of Type III.



Figure 11. Santarem. U. of Pa. Mus. *A*, 34-25-166, Ht. 15 cm,
B, 34-25-180, Ht. 12 cm.

Type III. Vessels with flaring annular bases.

a. Vessels with constricted necks.

- i. Necks characterized by one or more flanges and a bulbous base. Figs. 5, 6, 7, 8.

The bodies of these vases are fairly globular, though a few are fruit-shaped, Fig. 7. The necks and bases are decorated by incised lines and low relief. The bodies are decorated by low relief and figures in the full round. These vases

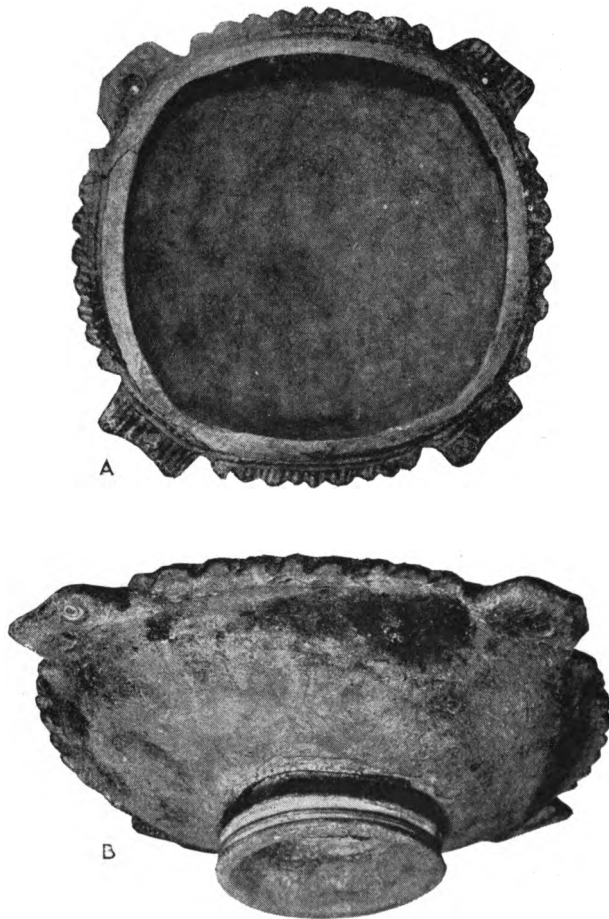


Figure 12. Santarem. Ethn. Mus., Göteborg, 24.16.53, Diam. mouth 20 cm.

are further characterized by two zoomorphic heads which protrude wing-like on either side in handle position, bearing other animals in the full round. Near the base of these heads is a perforation apparently for suspension. Unpainted.

There is a large fragment of a fruitshaped piece (UPM), which has no zoomorphic decoration, but indented strips

of clay extend vertically between the lobes and similar strips divide vertically the lobes themselves. Base is missing.

2. Globular jars with short bulging necks. Fig. 29-K.

There are fragments of two large jars (UPM) which must have been of much the same shape and decorated in much the same way as the small jar 21-A, except that these rest upon flaring annular bases which are small in proportion to the rest of the vessel. The necks have a re-curve above the bulge.



Figure 13. Santarem. U. of Pa. Mus. *A*, L-109-6, Ht. 19.5 cm.
B, 34-25-184, Ht. 18 cm.

3. Effigy jars. Fig. 10.

This has a globular body to which are affixed two heads and two tails, forming a double effigy jar. While this piece does not represent Tapajó pottery at its best, it is important as helping to explain the many jaguar heads in all Tapajó collections. Also, the foot-like form of the tails raises the question whether all the pieces which look like feet really are feet. Painted reddish brown.

b. Vessels with wide mouths.

1. See Fig. 11-A.

A rather shallow bowl the shoulder of which is decorated by a hollow cylinder flattened at opposite points and pierced possibly for suspension or to hold feathers. This cylinder was probably designed to hold some rattling device; the

lower part of it is so incorporated into the body of the bowl that its presence would hardly be suspected were it not broken. Midway between the flattened extensions and resting on the cylinder are two upturned bird heads. The neck is only slightly less in diameter than the body, and is decorated by incised ridges of clay and scroll in relief. Of dull red unpainted clay.

2. See Fig. 11-B.

A bowl surrounded by two constricting bands, giving it a scalloped effect in profile. The intervening space between the constrictions is decorated by a scroll in relief. The rim



Figure 14. Santarem. Mus. Amer. Indian, 16/3508, Diam. 31 cm.

is inturned and decorated by incised straight lines, giving it the effect of a third band. Of dull red clay and shows vestiges of red paint.

3. See Fig. 12.

An unpainted vessel more or less quadrangular at the mouth. Really a representation of two fish crossed at right angles; the rim pattern suggests fins. On the upper surface there are three tails and one head all perforated; on the lower surface there are two tails and two heads. The base is a modification of the flaring-ring form, the lower part is decorated by a series of rings of about the same diameter.

4. See Fig. 13-A.

A large bowl with a low, gently flaring undecorated base. Conventionalized agouti heads with upraised paws are in handle position; feet are indicated below these heads. The space between the heads is decorated by indented and incised strips of clay. The collar has a slight indented extension

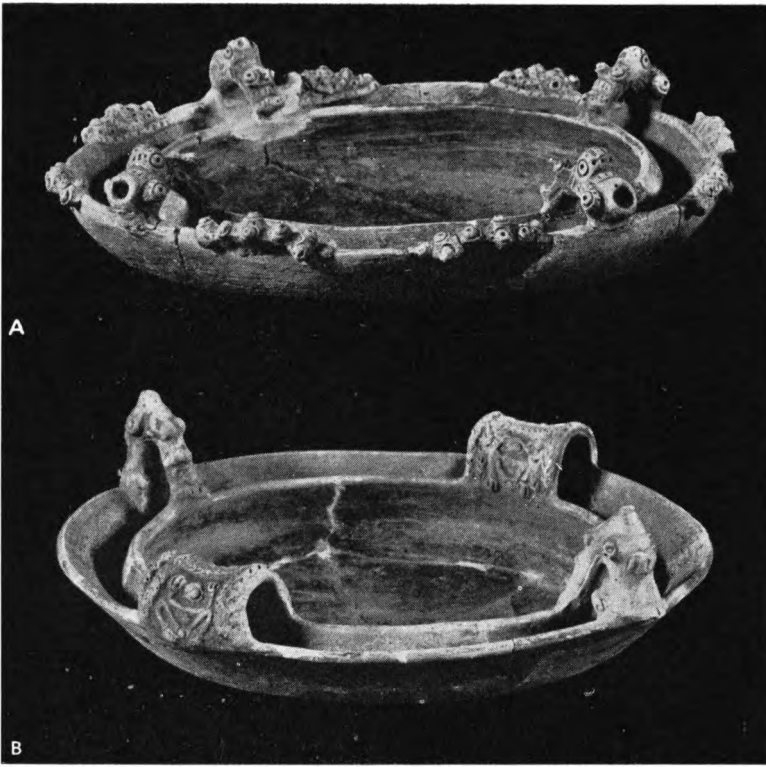


Figure 15. Santarem. U. of Pa. Mus. A, L-109-3, Diam. 31 cm.
B, L-109-4, Diam. 31 cm.

at the base, a trait which is common in Tapajó pottery; it is decorated by vertical incised lines dividing it into sections which are ornamented by the broken sigmoid scroll. Of reddish brown clay; unpainted.

5. See Serrano, p. 198.

A sub-globular vessel, the rim of which is decorated with zoomorphic heads below which are foot and leg-like appendages. Size not given.

c. Shallow dishes. Fig. 14.

This beautiful dish is decorated on its inner surface by scroll designs in low relief; around the edge there are two alternating animal designs in high relief. Painted reddish brown.

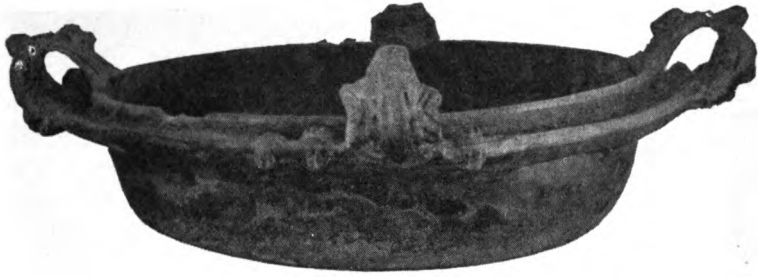


Figure 16. Santarem. Ethn. Mus., Göteborg, 26.26.1. Diam. 33 cm.



Figure 17. Santarem. U. of Pa. Mus. 34-25-1, Ht. 34 cm.

Type IV. Concentric dishes. Fig. 15.

These dishes have no support and give the impression of being two shallow bowls, the smaller within the larger.

- a. An inner undecorated bowl placed within a larger decorated one. The rim of the outer is decorated on the inside by incised oblique lines forming alternate angles, and pits are scattered between these lines.

The space between the rims is spanned by inturned bird heads, the tip of the beak touching the inner rim, and forming a kind

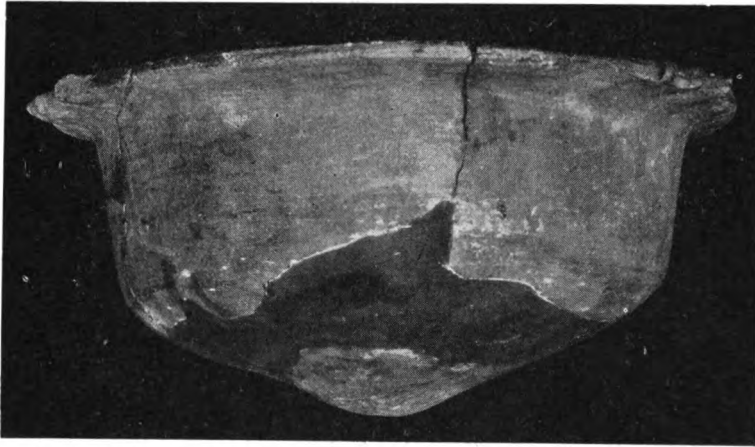


Figure 18. Santarem. U. of Pa. Mus. 34-25-2, Ht. 16 cm.



Figure 19. Santarem. U. of Pa. Mus. 34-25-163, Ht. 34 cm.

of handle. These bird heads are decorated with the doughnut form of eye in relief. In the back of the head there is a large hole, which does not, however, perforate it.

On the upper edge of the rim, and on either side of the bird head, is a group of doughnut eyes tied together in ornamental effect; the groups, in turn, are united by a ribbon of clay decorated by small indentations which passes from one, under the bird head, to the other.

The bowl is of buff colored clay, and was probably covered

with red paint. The outer and inner bowls are of the same height.

- b. An inner undecorated bowl placed within an outer one having no relief decoration. The rim in this type is perfectly smooth its only decoration being broad lines of black paint in more or less triangular effect on the red inner surface of the outside dish. The space between the two rims is spanned by two bird heads alternating with two loop handles. The bird heads have the round-rimmed protuberant eye; the loop handles are ornamented by a climbing monkey design in relief. The rim of the inner bowl is lower than that of the outer bowl.

Type V. Vessels with round bottoms. Fig. 19.

- a. A large bowl, probably for fermented beverages. Greatest diameter, 65 cm. The rim is inturned and decorated with incised parallel lines and four frog figures in low relief. Traces of red paint.
- b. See Fig. 21-A.
A bottle with a short bulging neck, painted gray and decorated with red geometric figures.
- c. See Figs. 20-A and 21-B.

These fragments suggest that highly decorated bowls were not uncommon. 20-A is of particular interest because of its scroll decoration. Both are of dark clay and unpainted.

Type VI. Vessels with flat bottoms. Fig. 17.

The line from the base to the shoulder is curved slightly inward; above the bulging shoulder the body slopes inward and upward to a neck which was apparently designed to support a covering. Shows traces of black, red, and buff paint.

Type VII. Tripod vessels. Fig. 16.

There are no tripods in UPM, and no pieces which appear to have belonged to tripods. There are, however, two large pieces in GEM which bear the marks of what were seemingly three feet. The rim of the one shown in Fig. 16 is definitely grooved with the typical Tapajó spanning handles; the other one has spanning handles also, but they connect the rim with



A



B

Figure 20. Santarem. U. of Pa. Mus. *A*, 34-25-130 a, Ht. 14 cm.
B, L-109-7, Ht. 11 cm.

a flange below it. This piece is more hemispherical than Fig. 16, and its decoration is similar to Fig. 15-A.¹

Type VIII. Vessel with a conical base. Fig. 18.

There is a large vessel (UPM) which has a gently sloping conical base. Total height, 16 cm; width at mouth, 28 cm; width of out-turned rim, 3.5 cm. Light yellow clay; traces of red paint.

¹ Nordenskiöld, 1930, Pl. XXIX-b.

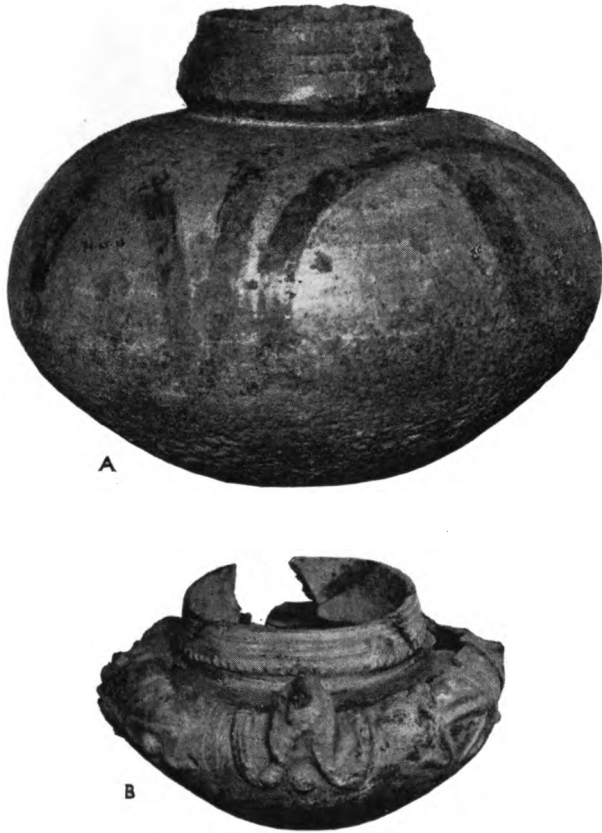


Figure 21. Santarem. U. of Pa. Mus. *A*, 34-25-26, Ht. 21 cm.
B, 34-25-132, Ht. 10 cm.

b. Description of smaller vessels

Type I Vase supported by a low annular foot. Fig. 13-B.

This vase is made of dark gray paste and is decorated by concentric rectangles in incised design. There are two pierced zoomorphic heads on the shoulder in handle position. The neck of this vase has been broken, but it was apparently the long decorated type so characteristic of Tapajó design. Shows traces of black paint.

Type II. Vessel with a flaring annular base.

Only one small vessel (UPM) has this type of base, although it is commonly found on larger pieces. Total height, 5.5 cm; diameter at mouth, 10 cm; diameter at bottom of base, 6.5 cm; height of base, 1 cm.

A little more than 1 cm below the rim, the vessel is surrounded by an ornamental ribbon of clay; from this band loop handles originate and terminate in the rim. A small zoomorphic in-looking head is attached to this band on either side midway between the handles. Shows traces of red paint.

Type III. See Fig. 20-B.

Base has been destroyed. The lower part is roughly hemispherical in form and curves in above its greatest diameter, and again at the base of a bulging neck, giving the vessel a scalloped effect in profile. Originally painted red; ornamented by two anthropomorphic heads in handle position; between these on either side are small strips of indented clay.

Type IV. Vessel supported on four legs.

Small pot with round bottom; an animal head protrudes at one side, a tail at the other. The space between the shoulder and the mouth is decorated by a constricting band. The shoulder is decorated by incised lines. Total height, 7.5 cm; height to shoulder, 5 cm; diameter of shoulder, 10.5 cm; diameter at mouth 7 cm.

Type V. Vessels with round bottoms and no supports.

a. See Fig. 23-B, C.

Fragments of small vessels highly decorated at the shoulder; these seemingly had long decorated necks.

b. See Fig. 23-D.

A little vase, quadrangular in effect, which has a head with upraised hands at one corner, and a tail-like appendage at the opposite one. Apparently had a decorated neck. A similar piece is shown by Serrano (p. 197), but this had a support.

c. See Serrano, p. 198.

A sub-globular vessel decorated by two indented strips of clay which surround the vessel, one near the mouth, one near the bottom. Size not given.



Figure 22. Santarem. U. of Pa. Mus. *A*, 30-37-11, Ht. 6 cm. *B*, 30-37-2168, Ht. 4.5 cm. *C*, 34-25-175, Ht. 11.3 cm.

Type VI. Effigy fish bowl. Fig. 22. A.

Has a smooth out-curving rim and is unpainted.

Type VII. Four-lobed vessels.

a. Vessels with necks.

1. See Fig. 24.

A vessel, the body of which has four distinct lobes. Two of these are ornamented with faces, and the two at right



Figure 23. Santarem. U. of Pa. Mus. *A*, 34-35-179,, Ht. 4 cm. *B*, 34-35-170, Ht. 5 cm. *C*, 34-25-134, Ht. 3,9 cm. *D*, 34-25-27, Ht. 5 cm.

angles were both probably ornamented with concentric rings. The vessel has a long neck with a decorated flange which is pierced. On the bottom are the marks of four small feet.

2. See Fig. 25.

Has a head on only one lobe and concentric rings on the other three.

b. Vessels without necks.

1. See Figs. 26 and 27.

Decorated with faces and the eye elements so characteristic of the Tapajó culture. Appears not to have had a neck.

2. Vessel with a low ring-base.

Each of the four lobes seems to have been decorated with zoomorphic figures in low relief. Total height, 5.2 cm; width across the shoulder, 5 cm; height of base, .5 cm; diameter of base, 2.5 cm. (UPM.)

Type VIII. Vessel with flat bottom. Fig. 23-A.

Of light-colored, slightly rough clay. Decorated with incised geometrical figures. Unpainted. Not typically Tapajó.



Fig. 24.

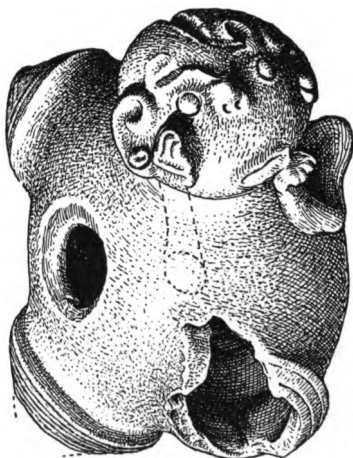


Fig. 25.

Figure 24. Santarem. U. of Pa. Mus. 34-25-144, Ht. 11.5 cm.

Figure 25. Santarem. Ethn. Mus., Göteborg, 24.16.61, Scale, 1/2.

c. Study of elements

In addition to the restored and partially restored vessels just described, there are numerous fragments and small pieces which must be taken into consideration. The following outline is an attempt to reduce to elements of form and decoration the various stylistic expressions within the Tapajó area.

BODY DECORATION.

Type I. Engraved decoration.

- a. Lines.
 1. Straight.
 2. Curved. Fig. 35-F.
 3. Circles.
- b. Pits.
 1. Combined with straight lines.
 2. Combined with eye representations.

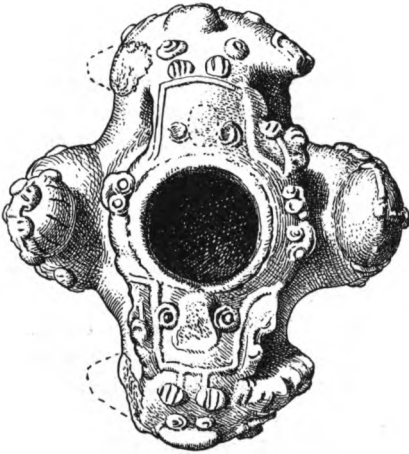


Fig. 26.

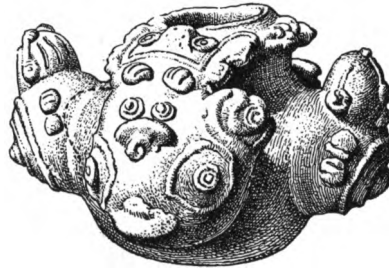


Fig. 27.

Figure 26. Tauajury, Santarem. Ethn. Mus., Göteborg, 24.16.93.
Seen from above. Scale, 1/2.

Figure 27. Same vessel as in fig. 26, Sideview, Scale, 1/2.

3. In vertical rows. Figs. 22-B, 34-F.
Comment: These pieces are by no means typical, the pit was sparingly used in Tapajó design.

Type II. Low relief.

- a. Snake design.
 1. Smooth.
 2. Pitted. Fig. 35-L.
- b. Geometrical figures.
 1. Curvilinear. Fig. 35 K.

2. Rectilinear. Fig. 35-D.
3. Straight lines.
 - a. Smooth.
 - b. Indented. Fig. 34-H.
4. Scroll. Figs. 7, 11, 20-A.
- c. Human face . .
- d. Animal forms. Fig. 30-C.
- e. Conventionalized eye.
 1. Coffee bean.
 2. Simple protuberant.
 3. Round-rimmed protuberant.
 4. Doughnut.

Comment: The pit and incised circle referred to above may also be classified as eye designs. In the cruder pieces the pit is sometimes used; the incised circle is found on some of the best pieces.

Type III. High Relief.

- a. More or less conventionalized zoomorphic heads in handle position, such as those shown in Fig. 13-A.
- b. More or less anthropomorphic heads in handle position Fig. 20-B; judging from fragments of large pots, such pieces as those shown in Fig. 33 were often used in handle position.
- c. Conventionalized jaguar heads. Fig. 32-E.

Comment: There are many of these in all the collections the writer has seen. They may have been used in handle position, or may have been associated with such jars as that shown in Fig. 10. In this case they are not spouts but purely ornamental.

Type IV. Full Round. Figs. 5—9.

Frogs and other animals found clinging to crocodile heads or the body of the vessel.

Type V. Painted Design. Figs. 3-B, 21-A.

Simple geometrical figures, usually in red or black or both on a light gray or dull yellow background.

Type VI. A hollow cylinder. Figs. 11-A, 28-B, 35-K.

Usually decorated in low relief; surrounds the vessel at the shoulder.

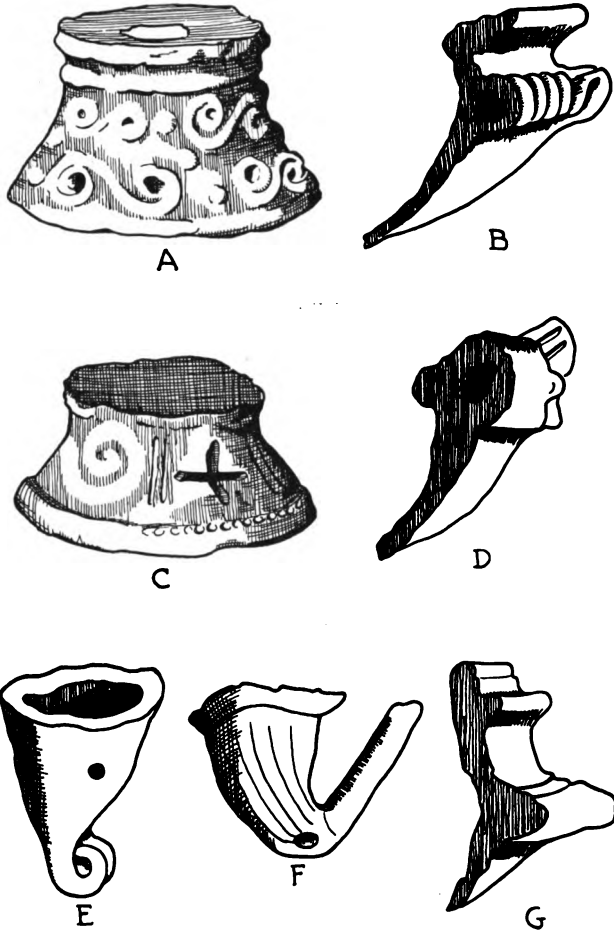


Figure 28. *A*, Ethn. Mus., Göteborg, 24.16.44, Santarem, Ht. 6 cm. *B*, U. of Pa. Mus. not cataloged, Lago Grande, Ht. 7 cm. *C*, Ethn. Mus., Göteborg, 24.16.44, Santarem, Ht. 3 cm. *D*, U. of Pa. Mus. 30-37-1192, Santarem, Ht. 7 cm. *E*, U. of Pa. Mus. 30-37-1204, Santarem, Ht. 5 cm. *F*, U. of Pa. Mus. 30-37-2131 h, Santarem, Ht. 4.9 cm. *G*, U. of Pa. Mus. not cataloged, Lago Grande, Ht. 5.5 cm.

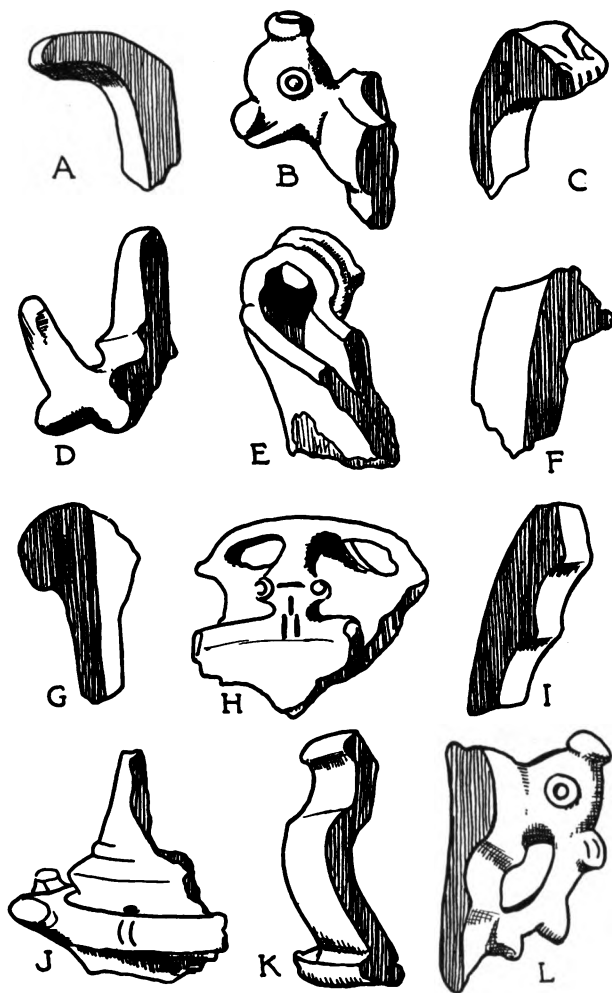


Figure 29. U. of Pa. Mus. *A*, 30-37-11, Santarem, Ht. 4 cm. *B*, not cataloged, Lago Grande, Ht. 4.5 cm. *C*, 30-37-1179, Santarem, Ht. 3.5 cm. *D*, not cataloged, Lago Grande, Ht. 4.5 cm. *E*, 30-37-1190, Santarem, Ht. 5.5 cm. *F*, 30-37-1178, Santarem, Ht. 4 cm. *G*, not cataloged, Lago Grande, Ht. 4.5 cm. *H*, 00-00-00, Lago Grande, Ht. 5 cm. *I*, not cataloged, Lago Grande, Ht. 5 cm. *J*, 30-37-2085, Santarem, Ht. 5 cm. *K*, L-109-12, Santarem, Ht. 7 cm. *L*, not cataloged, Lago Grande, Ht. 7 cm.

RIMS.

Type I. Smooth and straight along the edge.

A. Design on the exterior surface.

1. Incised lines.

- a. Straight. Sometimes a combination of horizontal and vertical lines in alternating groups. Fig. 11-B.
- b. Curved, including the simple scroll and the sigmoid scroll in various forms. Figs. 1-B and 20-A.
- c. A combination of lines and pits. Fig. 30-F. Rare.

2. Impressions with the finger or a tool. Fig. 34-J.

3. Shelf-like extension just below the rim and in effect, forming a part of it. Decorated by incised lines and by relief. Fig. 28-G.

4. Rim thickened by an extra layer of clay.

- a. Plain.
- b. Decorated by relief at intervals along the side or top of the rim; Fig. 29-B is a common form.

5. Hollow rims decorated by

- a. Relief. Fig. 28-D.
- b. Incised lines.

B. Design on interior surface, decorated by

1. Incised lines.

- a. Straight. Fig. 34-E, I.
- b. Curved.
- c. Combination of diagonal lines and circles. Fig. 34-A.

2. Pits.

Type II. Smooth and straight along the edge but decorated by a lip. The angles of the lips vary from almost a right angle to a little less or a little more than one, Figs. 29-A, C.

Decorated by

- 1. Incised lines. Fig. 29-C, F.
- 2. Relief.
- 3. Digital impressions.
- 4. Scallops at the edge of the lip. Fig. 18.

Type III. Irregular rims decorated by

- A. Animal designs which are structurally part of the rim. Figs. 14, 30-B.
- B. Geometrical designs giving curved or scalloped effects.

1. Decoration on the interior surface.
 - a. Relief. Fig. 30-E.
 - b. Incised lines. Fig. 30-A. This piece is not in the typical Tapajó style.
 - c. Pits. Fig. 30-D. This is probably not a Tapajó piece.
 - d. Pits at the end of lines. Fig. 30-F. Rare, not typical of Tapajó design.
2. Decoration on the exterior surface.
 - a. Relief.

Type IV. Rims of which the handles are structurally a part.

- A. Double rims on shallow bowls. Handles span these rims. Fig. 15.
- B. Deeply grooved rims with spanning handles. Sometimes these handles have simple geometrical decoration, sometimes the design is zoomorphic. Fig. 29-E, H.

HANDLE FORMS.

Type I. Lugs.

- a. Plain and incised with simple geometrical designs. Pierced for a cord. Fig. 35-I.
- b. A lug in the form of a scroll. Fig. 35-E. Comment: Found in both collections but quite common at Lago Grande.
- c. Perforated lugs with indented edge.

Type II. Conventionalized animal and bird heads through which there is a hole for a cord. Figs. 5 and 32-C.

Type III. Conventionalized zoomorphic heads under which is developed a loop-like handle. Fig. 31-I.

Type IV. Bird heads in which the bill is extended proboscis-like to form a handle. Figs. 29-L, 35-H.

Type V. Quasi-human heads from the chin of which a handle-like form is developed. Fig. 31-J.

Type VI. Bird-like forms in which the two wings become conventionalized into a double handle. Fig. 32-B.

Type VII. Loop handles decorated by pits, incised lines, conventionalized animal designs in relief.

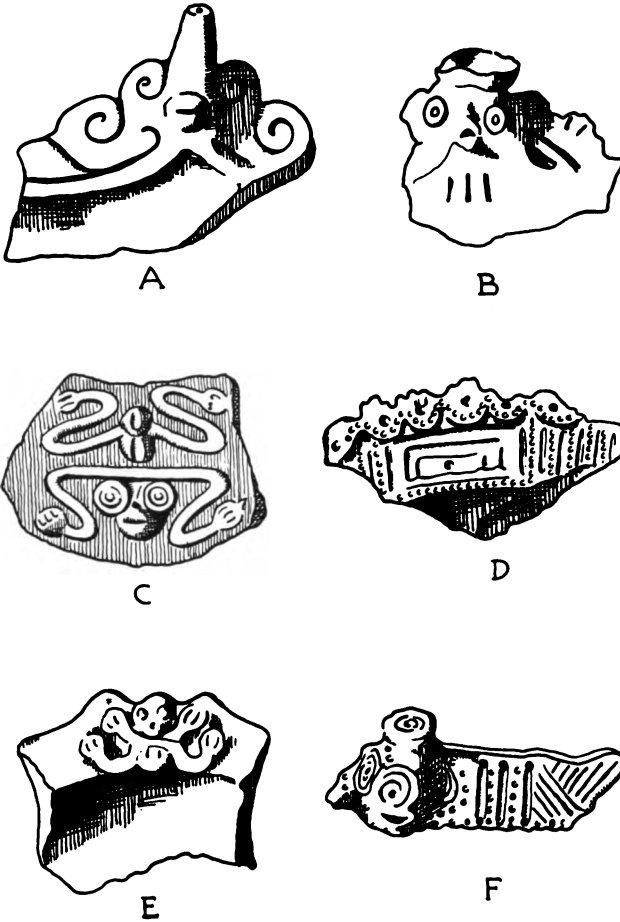


Figure 30. *A—E*, Santarem, *F*, Lago Grande. U. of Pa. Mus. *A*, 30-37-2153, Ht. 6 cm. *B*, 30-37-292, Ht. 4 cm. *C*, 30-37-2114, Ht. 5.5 cm. *D*, 30-37-2111, Ht. 4 cm. *E*, 30-37-2089 b, Ht. 5.3 cm. *F*, not cataloged, Ht. 3.6 cm.

SUPPORTS.

Type I. Feet.

- a. See Fig. 28-E.

Hollow feet, bulbous in form, having a small hole near the point of attachment to the body of the pot. The tips of these feet are always slightly curled outward and upward. All unattached.

- b. See Fig. 28-F.

A hollow bulbous foot which tapers suddenly at the tip and then with a greatly reduced diameter bends backward and upward, forming a sort of loop. Less common than «a». All unattached.

- c. A long conical foot, the upper part of which is decorated with an anthropomorphic face in relief. This form is rare.

- d. Animal feet on small effigy pots.

Type II. Annular Bases.

- a. The simple ring-base. Rare. Fig. 13-B.

- b. The flaring annular base.

1. Plain and unpainted.

2. Decorated with paint, incised lines, low relief or a combination of these elements. Figs. 3-B and 5-C.

3. Same as «2» but perforated. Figs. 28-A and C.

4. A base, the lower part of which has a secondary flare.¹

- c. The medially constricted annular base. This is the form employed on the caryatid vases, and is usually decorated with incised curved and straight lines. Fig. 1.

- d. A piece which is apparently a base and which consists of a series of disks graduated into each other, the smallest disk being on the bottom.

NECKS.

Type I. Short and bulging; simple decoration or none.

- a. Characterized by a simple bulge, and perhaps designed to support a lid, Figs. 17 and 20-B.

- b. Characterized by a bulge and then an outward re-curve. Figs. 10 and 29-K.

¹ Nordenskiöld, 1930, Plate 25-B.

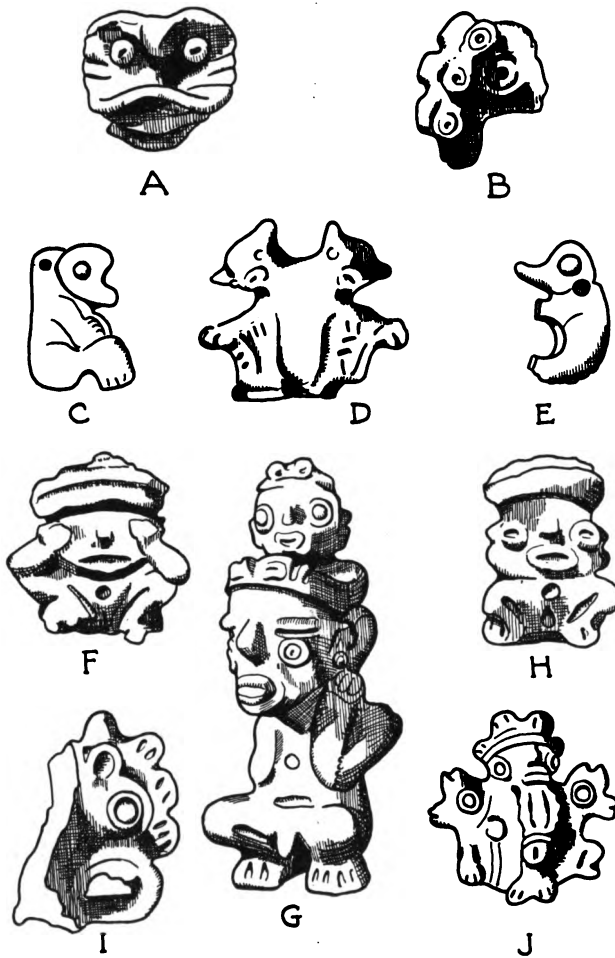


Figure 31. Santarem. U. of Pa. Mus. *A*, 30-37-446, Ht. 4 cm. *B*, 30-37-529, Ht. 4.5 cm. *C*, 30-37-5, Ht. 2.5 cm. *D*, 30-37-710, Ht. 5 cm. *E*, 30-37-6, Ht. 3.5 cm. *F*, 30-37-31, Ht. 4 cm. *G*, 30-25-171, Ht. 14 cm. *H*, 30-37-31, Ht. 4.2 cm. *I*, 30-37-678, Ht. 7.2 cm. *J*, 30-37-24, Ht. 6 cm.

Type II. Long and decorated.

Characterized by one or more decorative flanges above a bulbous expansion. The lower part of the neck is usually decorated either with a face in low relief or with geometrical designs in low relief. This form of neck is strongly characteristic of Tapajó design. Figs. 5—8.

Type III. The inset neck.

Fig. 11-A illustrates this form of neck; it is less marked in 29-J. It is not unusual in Tapajó pottery for the body of the vessel to extend above the base of the neck, forming a cup-like space.

HUMAN FORM. FEMALE.

Figurines. Type I. Solid.

- a. Female figure kneeling, feet elevated; one hand at side, one raised, parts of both missing. Possible ceremonial attitude. Bulging calves suggest strictures. Head missing. 1 example.
- b. Female figure, squatting on heels, legs and feet indicated, knees directly forward. 1 example.

Type II. Solid with crescent-shaped base.

- a. Female figure kneeling, legs indicated but not the feet. 1 example (CUM 6987).
- b. Female figures, no legs nor feet indicated. Hands and heads missing. 4 examples.
- c. Same as »b», but having a small cylindrical opening through the body. 2 examples.

Type III. Hollow with crescent-shaped base.

Female figure, no legs indicated, but toes represented by incisions at the points of the crescent. 1 example.

Type IV. Hollow with crescent-shaped base.

- a. Female figures, heads missing, neither legs, feet, nor toes indicated. Fragments of 11.
- b. Same as above with head, Fig. 41-A, UPM. Decorated with black and red lines on a light gray background. Arms are free-modeled, hands rest on abdomen. Modified coffee bean eye. Head is pierced in front of the ears. In MAI there is a piece from Lago Grande, Fig. 40; the head is disproportion-

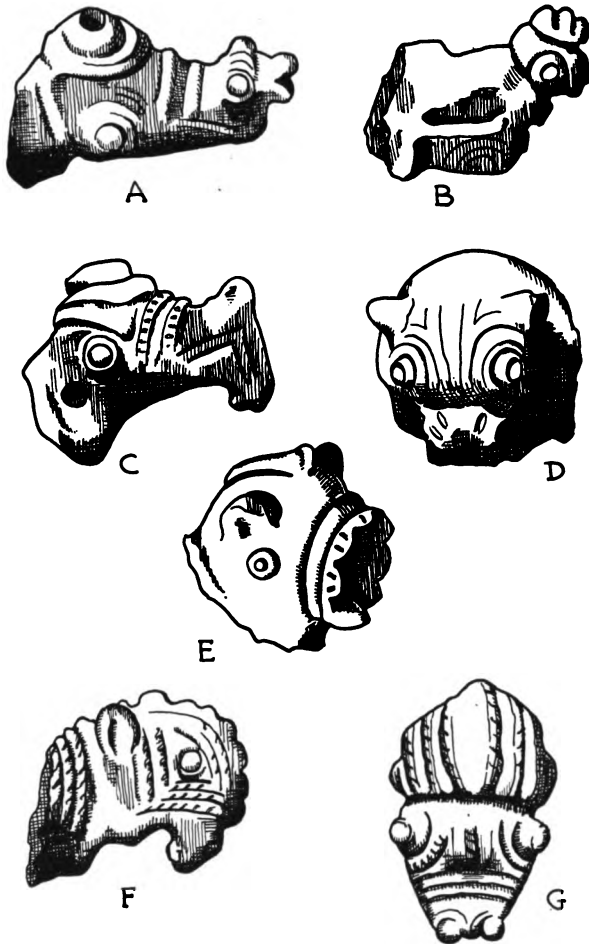


Figure 32. Santarem. U. of Pa. Mus. *A*, 30-37-672, L. 9 cm. *B*, 30-37-2082, L. 8 cm. *C*, 30-37-22, L. 9 cm. *D*, 30-37-19, Ht. 7 cm. *E*, 30-37-442, Ht. 7 cm. *F*, 30-37-404, Ht. 7 cm. *G*, 30-37-7, L. 8.5 cm.

ately large, the eyes are long and slit. The head is flat, decorated by a crown-like band tied in a knot at the back. There is a similar piece in Sweden.¹ All of these have free-modeled arms and the hands rest on the abdomen.

Type V. Hollow with oval base.

A crude form having a hole in the back. 1 example.

HUMAN FORM. MALE.

Figurines. Type I.

- a. Man squatting on heels, Fig. 22-C. Has round-rimmed protuberant eye, well-modeled nose, wears ear plug. Has a crown-like band across the top of the forehead. Eyebrows are definitely indicated in relief. The decoration on the back suggests the hair was worn in two braids or confined in two cases.
- b. Man squatting, Fig. 31-G, on his heels, carrying a child on his back. He has a posteriorly flattened head, round-rimmed protuberant eye, and a crudely modeled nose. The eyebrows are in relief, and incised lines run from the eyes to the lower part of the jaw. He wears ear plugs and the child's arms around the man's head form the crown-like effect common on most of the anthropomorphic representations.

HUMAN FORM. *Treatment of specific parts.*

Legs.

Practically all the leg fragments show evidence of strictures.²

Feet.

The feet are conventionally represented, the toes being marked by a series of incised lines. Fragments which belonged to figurines apparently intended to stand, have protruding heels, the ankle being about equi-distant between the toes and the heel.³

¹ Nordenskiöld, 1930, Pl. XXV, Fig. a.

² Métraux, 1928, p. 196. According to this author the use of leg stricture was a widely distributed trait in pre-Columbian America, extending from the Caribs of the West Indies, through Guiana to the Chibchas of Colombia. It was also found at the mouth of the Amazon and as far south as the Tupinamba of Bahia.

³ Spinden, 1917, p. 50. The protruding heel is found also upon figurines from the archaic horizon of Mexico.

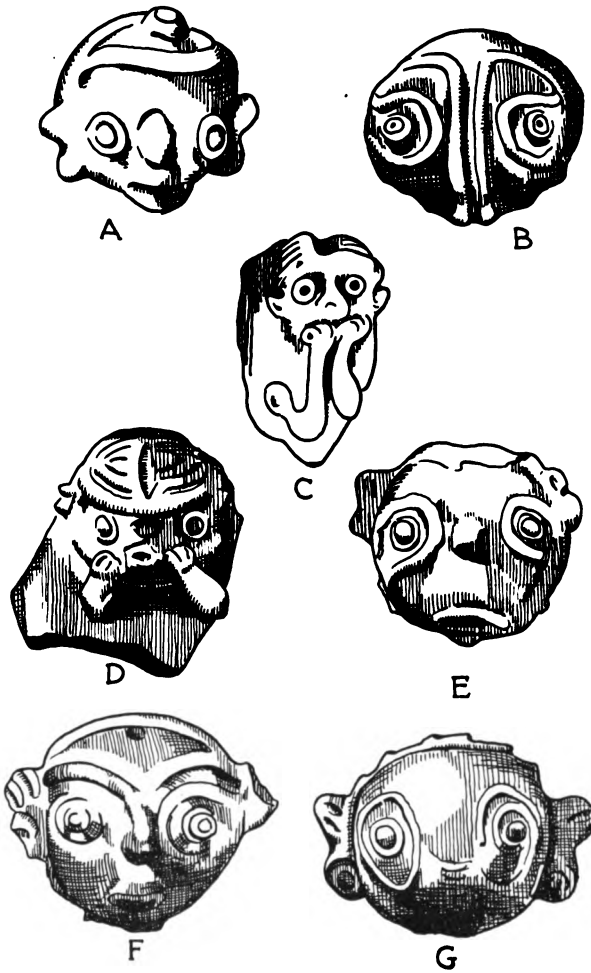


Figure 33. *A—E and G, Santarem, F, Lago Grande. A, 30-37-230, Ht. 6 cm. B, 30-37-246, Ht. 7 cm. C, Catholic Univ. Mus. Wash. 6934, no size, D, 30-37-16, Ht. 7 cm. E, 30-37-289, Ht. 6 cm. F, not cataloged, Ht. 6.3 cm. G, 30-37-290, Ht. 6 cm. A—B and D—G, U. of Pa. Mus.*

Hands.

On female figurines, the hands are usually placed on the abdomen or under the breasts; they are not separately modeled, but are indicated by a series of lines at the end of the arm.

On male figurines, on the caryatids, and on quasi-human forms, hands are indicated as on the female figure but are most often raised to the face, the elbow frequently resting on the knee. In representations of the agouti the paws are practically always raised to the face. This pose is one of the most striking characteristics of the Tapajó culture. Figs. 31-F; 32-D; 33-D.

Heads.

Some heads suggest posterior flattening, others are definitely round in effect, especially the quasi-human forms which have served as *adornos*, Fig. 33. Several anthropomorphic head representations are normal in appearance, some rather well modeled, and a large proportion display some form of headdress, a crown-like effect, an encircling band in relief with a tassel in the back, or a simple band in relief across the front of the head.

Ears.

Ears are usually bi-lobed, and frequently an ear plug is indicated, Fig. 33. Another important, though much rarer form, is the one used on the two effigy pots, Fig. 3.

MISCELLANEOUS FIGURINES.

Type I. Quasi-human.

- a. A man's head on a turtle's body; the head has a crown-like headdress, the eyes are of a more or less coffee bean variety.
- b. A head with two horn-like appendages resting on a single foot. There is a fragment of this type of figurine in the Lago Grande collection also.¹

Type II.

- a. A little zoomorphic figure sitting upright, hind feet pressed together, but with no evidence of forefeet.

¹ Smith, p. 506. This author says that the Indians near Santarem had a legend to the effect that there lived in the vicinity a dwarf with only one foot, but this foot was so large that when he rested, he raised it over his head for a sunshade.

AMULETS.

Type I. Stone.

- a. A crudely modeled zoomorphic head with long slit eyes. Apparently had two ring-like openings for suspension.
- b. A skillfully executed zoomorphic form. Fig. 31-E.
- c. An undecorated rectangular pendant.
- d. Pendant in form of fish. GEM 25. 14. 3.

Type II. Clay.

- a. A zoomorphic form beautifully executed. Fig. 31-C.

ANIMAL REPRESENTATION.

The Tapajó pottery has been described as a »véritable catalogue de toute la faune du bassin amazonien.»¹ Certain zoomorphic forms are readily recognizable, others are so highly conventionalized that it is difficult to determine the intention of the artist. Some of the most frequently used forms are the following: —

Amphibians.

Frog (and perhaps also toad) representations are plentiful both in the full round and in relief. In the full round they appear, along with other animals, on highly ornamented vases, Fig. 5; in relief, they are frequently employed in body, rim, and handle decoration, Fig. 16. Large pieces are often rattles, Fig. 32-G.

Avian Forms.

One of the marked characteristics of the Tapajó pottery is its many bird representations. Almost none of the avian forms can be said to be naturalistically represented; on the contrary, a rather definite scheme of conventionalization is adhered to. Since Amazonia is so rich in bird life, it would be hazardous to attempt to determine the exact species intended, although well known forms — the toucan, the

¹ Linné, 1928, p. 83.

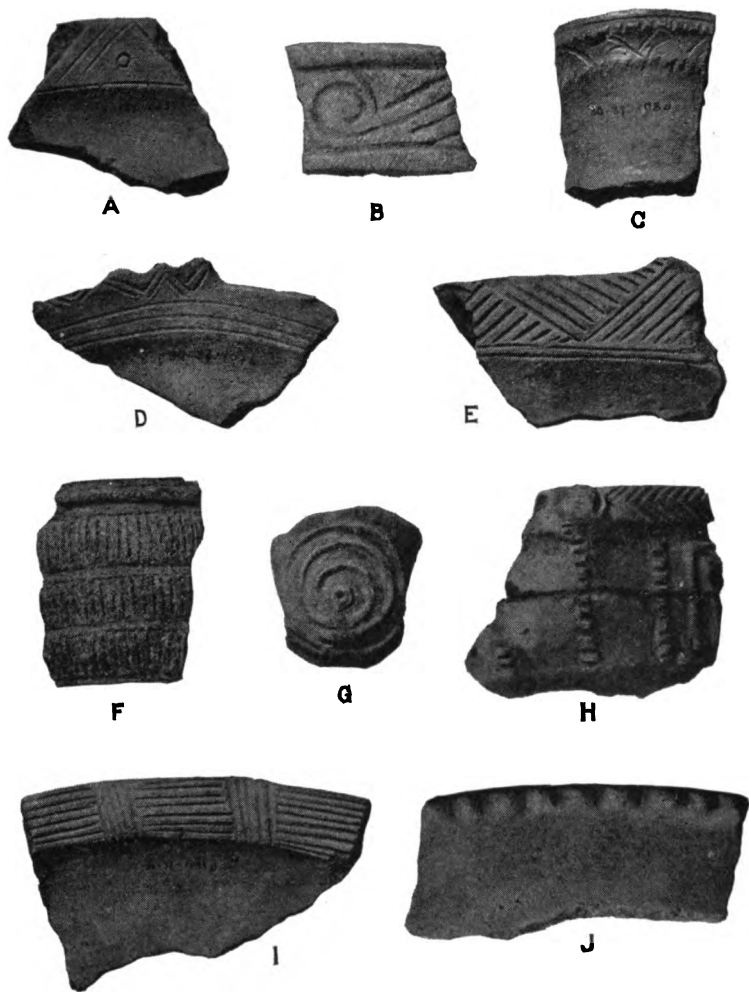


Figure 34. Santarem, U of Pa. Mus. *A*, 30-37-1063, Ht 8 cm. *B*, 30-37-2035, Ht 4.4 cm. *C*, 30-37-1080, Ht 8.8 cm. *D*, 30-37-1076, Ht. 6.3 cm. *E* 30-37-1056, Ht 6 cm. *F*, 30-37-1172, Ht, 7.5 cm. *G* 30-37-2072, Ht 6 cm. *H* 30-37-2091, Ht 8 cm. *I* 330-37-1055 L. 13-6. *J* 30-37-1178 A, L. 11.5 cm.

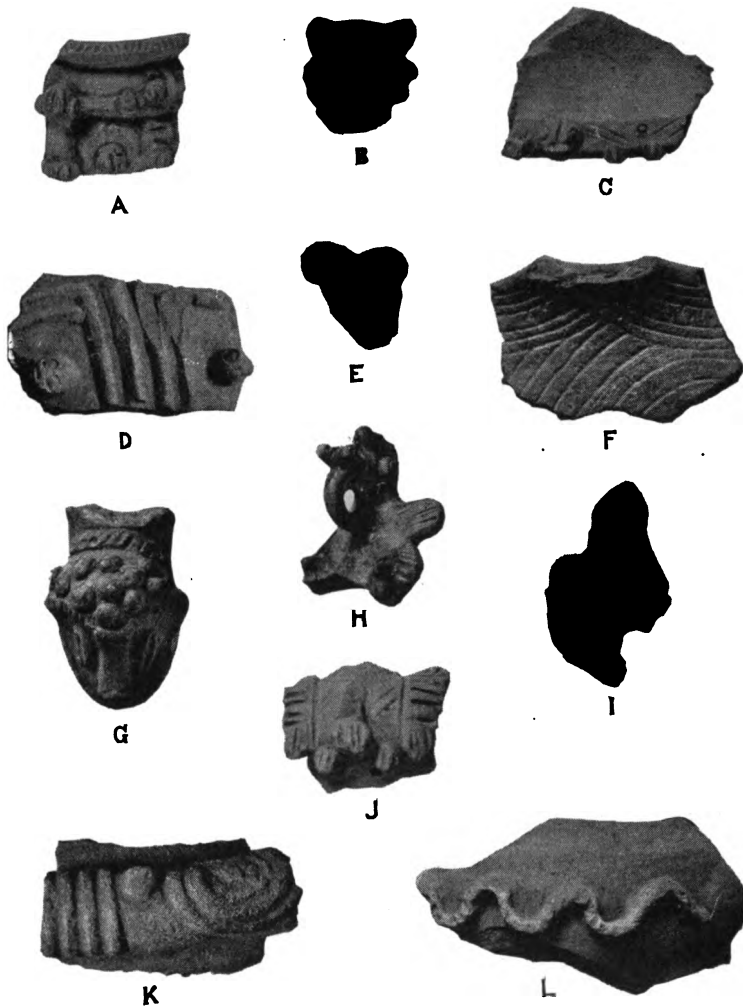


Figure 35. U of Pa, Mus. *A* 30-37-2097, Ht 5 cm. *B* 30-37-195, Ht 2.5 cm. *C*. 30-37-2095, Ht 6.5 cm. *D* 30-37-2090, L. 10.5 cm. *E* 30-37-350, Ht 3.7 cm. *F*. 30-37-2033, L. 10.5 cm. *G*. not cataloged, Ht 6 cm. *H*. 30-37-618, Ht 7.2 cm. *I*. 30-37-350, Ht. 7.7 cm. *J*. 30-37-611, Ht 5 cm. *K*. 30-37-2036, L. 10.5 cm. *L*. 30-37-2088 L. 14 cm. A-F, H-L, Santarem; G. Lago Grande.

curassow, parrots, possibly the king vulture, and others — are suggested by the general design. The bat also is commonly represented.

The curious line and relief markings on most of the bird heads suggest the possibility that the potter may have been attempting to indicate, by these conventionalizations, something of the size and shape of the various color fields which mark the heads of many Brazilian birds. Fig. 32-A, C.

Mammals.

What probably is the jaguar is one of the most frequent animal representations in the Tapajó culture. It appears in both the Santarem and Lago Grande collections, always in the same conventionalization — a head with wide open jaws from which protrude pointed teeth and a pointed tongue. In the pieces from Lago Grande the protrusion of the tongue seems more accentuated than in those from Santarem. Fig. 32-E.

Another animal which is strikingly associated with the Tapajó pottery is the agouti. When feeding, this species sits upright and takes its food in its forepaws like a squirrel.¹ It is sometimes represented naturalistically, but more often it is a conventionalized motif; it is, however, always depicted with paws upraised as if feeding. Fig. 32-D.

Reptiles.

The crocodile is commonly represented. It appears on the sides of vases as arms, supporting other animals, Fig. 5.

The serpent motif is not especially prominent although its appearance is of fair frequency. Fig. 35-L.

EYE FORMS.

The figures in the following analysis refer to the number of instances, a single piece having been counted as unity regardless of the number of eye representations on it. This study refers to the University of Pennsylvania Museum's collection only.

¹ Bates, p. 104.

Type I. Simple punctate.

Santarem:	Anthropomorphic	1
	Zoomorphic	7
	Total	8
Lago Grande:	Anthropomorphic	0
	Zoomorphic	4
	Total	12

Comment: Workmanship crude.

Type II. Horizontal ribbon of clay.

Santarem:	Anthropomorphic	3
	Zoomorphic	0
	Total	3
Lago Grande:	Anthropomorphic	1
	Zoomorphic	0
	Total	4

Comment: Workmanship crude.

Type III. The slit eye. Fig. 40.

An oval protuberance cut horizontally.

Santarem:	Anthropomorphic	16
	Zoomorphic	9
	Total	25
Lago Grande:	Anthropomorphic	2
	Zoomorphic	0
	Total	27

Type IV. Single incised ring. Fig. 31-D.

Santarem:	Anthropomorphic	7
	Zoomorphic	23
	Total	30
Lago Grande:	Anthropomorphic	10
	Zoomorphic	59
	Total	99

Comment: The anthropomorphic figures are all caryatids, rather poorly executed. Of the zoomorphic forms, some are crudely done, but bird representations, both single and double-headed, are well executed. Fig. 31-D.

Type V. The doughnut eye. Fig. 31-B.

Style A. Probably produced by two concentric impressions made with hollow reeds, supplemented by removal of the central portion.

Santarem:	Anthropomorphic	3
	Zoomorphic	25
	<hr/> Total	28
Lago Grande:	Anthropomorphic	1
	Zoomorphic	17
	<hr/> Total	46

Comment: Only four pieces which show skill of workmanship. Fig. 31-B and Fig. 33-C.

Style B. Same as Style A, but in relief, giving the effect of appliqué. Fig. 31-A.

Santarem:	Anthropomorphic	1
	Zoomorphic	5
	<hr/> Total	6
Lago Grande:	Anthropomorphic	0
	Zoomorphic	22
	<hr/> Total	28

Comment: Only two pieces which show any refinement of technique. Figs. 30-B and 31-A.

Style C. Style B placed upon one or more disks giving a piled-up effect.

Santarem:	Anthropomorphic	0
	Zoomorphic	2
	<hr/> Total	2
Lago Grande:	0
	<hr/> Total	2

Comment: This form of eye was used 6 times in the two collections as a purely decorative motif, and the workmanship in all cases was fairly good.

Type VI. The coffee bean eye. Fig. 31-H.

A pronounced oval protuberance, indented horizontally.

Santarem:	Anthropomorphic	48
	Zoomorphic	13
	<hr/> Total	61

Lago Grande: Anthropomorphic	44
Zoomorphic	3
Total	108

Comment: About 20 % of these pieces show good technique.

Type VII. The simple protuberant. Fig. 31-E.

Santarem: Anthropomorphic	6
Zoomorphic	23
Total	29
Lago Grande: Anthropomorphic	2
Zoomorphic	22
Total	53

Comment: Five of these pieces, all zoomorphic, show refinement of technique.

Type VIII. The pitted protuberant.

Santarem: Anthropomorphic	0
Zoomorphic	5
Total	5
Lago Grande: Anthropomorphic	0
Zoomorphic	8
Total	13

Comment: Not any of good workmanship.

Type IX. The round-rimmed protuberant eye. Fig. 31-I, J.

Style A. Single rim.

Santarem: Anthropomorphic	40
Zoomorphic	400
Total	440
Lago Grande: Anthropomorphic	95
Zoomorphic	352
Total	887

Comment: On the fragments characterized by this form of eye it is frequently difficult to distinguish between the anthropomorphic and zoomorphic forms. Many of the pieces probably represent mythological characters, or are purely imaginative creations.

This type of eye is used on practically all the bird forms, and these constitute a conspicuous element in the decoration. It is also used, almost exclusively, on the representations of the agouti, the jaguar, and the frog.

There are some crude forms in which this eye has been attempted, but, in the main, the round-rimmed protuberant eye, or some variation of it, is found on the pieces which show the best workmanship.

Style B. Single rim and central pit. Fig. 33-B.

Santarem:	Anthropomorphic	0
	Zoomorphic	1
	<hr/> Total	1
Lago Grande:	Anthropomorphic	0
	Zoomorphic	3
	<hr/> Total	4

Comment: The one piece in the Santarem collection which shows this characteristic also shows the highest type of technique.

Style C. Multi-rimmed and multi-ringed protuberant eye. Fig. 30-C.

Santarem:	Anthropomorphic	0
	Zoomorphic	28
	<hr/> Total	28
Lago Grande:	Anthropomorphic	0
	Zoomorphic	27
	<hr/> Total	55

Style D. Style A with an enclosed eye zone. Fig. 33-E.

Santarem:	Anthropomorphic	0
	Zoomorphic	6
	<hr/> Total	6
Lago Grande:	Anthropomorphic	0
	Zoomorphic	8
	<hr/> Total	14

Comment: Some of the finest craftsmanship is in this group.

The various forms of eye representation are also extensively used as body, rim, handle, and base decoration, sometimes more than one form being employed in the same design. The eye may constitute the sole element of the design or it may

be combined with incised lines or pits, or geometrical forms in relief; or often the design is made up of conventionalized anatomical representations of which the eye is but one.

IV. Geographical notes.

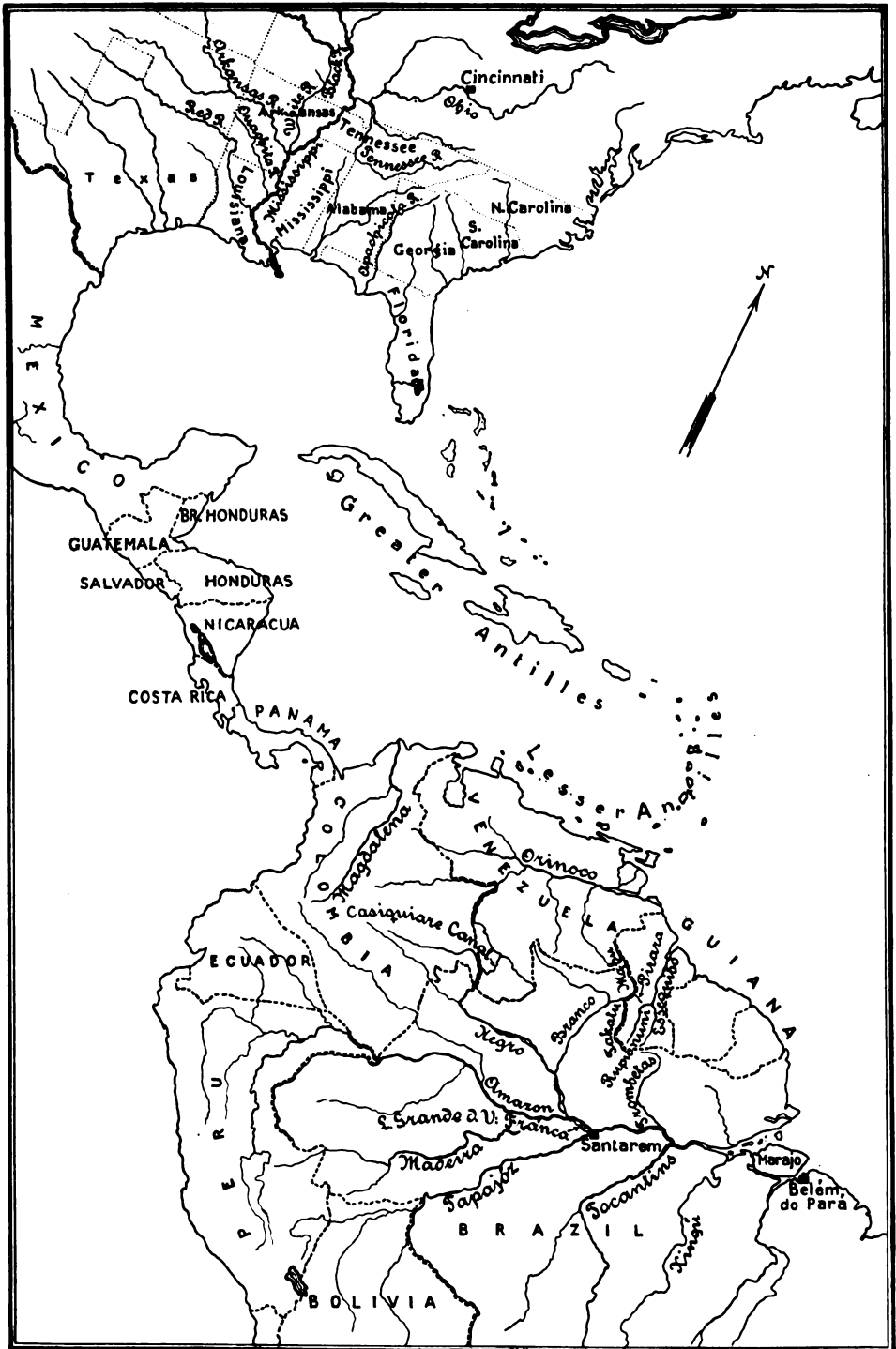
Before attempting a study of Tapajó pottery from the standpoint of its cultural connections, it may be well to consider the geographical position of Santarem. It is located, as has been previously stated, at the mouth of the Rio Tapajoz, a large southern tributary of the Middle Amazon. In his study of Amazonian watercraft, Roop states that little has been published concerning this river, beyond records of explorations along its lower reaches. It is a big river, navigable by power vessels for about one hundred and fifty miles.¹ With regard to its upper stretches, Hartt in his report of the reconnaissance of the lower river in 1870, makes the following statement:

»The head waters of the Rio Preto, one of the branches of the Arinos, are so close to those of the Paraguay, that canoes have passed by portage from one to the other, and Chandless states when he was in Diamantino, a canoe that had ascended the Tapajos from near Santarem, laden with a cargo of 1500 arrobas crossed over the watershed and descended the Paraguay to Villa Maria.»²

In addition to an avenue to the south, the Tapajó had the benefit of the great east-west highway, the Amazon. There are several accounts of early voyages by Europeans from the Peruvian highlands to the Atlantic coast and in the opposite direction over this inland waterway. Not the least interesting of these is one recorded by Friar Gaspar de Carvajal. This particular adventure originated in an expedition in command of Gonzalo Pizarro, who set out from Peru with a great following in search of El Dorado and La Canela. He was deserted high up on the Napo,

¹ Roop, p. 47.

² Hartt, p. 11 et seq.



Map showing the archaeological regions discussed in this paper.

December, 1541, by his lieutenant, Francisco de Orellana, who with a few men and two small boats made his way to the mouth of the Amazon.

As the story is recorded by Carvajal, they had no compass, and none of them understood navigation, but they made sails of their sleeping blankets and put out to sea. For a few days the two little boats traveled north in company; then they lost sight of each other. One was carried around Trinidad, the other got into the Gulf of Paria, but both arrived at Cubagua, a small island off Margarita, two days apart.¹

According to the United States Hydrographic Charts, there is a great westward-flowing Atlantic current which breaks at Recife, Brazil; part of it flows down the coast, the other portion follows the northeastern outline of the continent and enters the Caribbean.² Thus the voyage of Orellana and his followers was theoretically possible. In the summer of 1937, the writer discussed the practicability of such a trip with Mr. A. K. Young of the Canadian National Lines, who has had several years experience in these waters. In his opinion the adventure might easily have taken place in much the way Carvajal recorded it. Thus the route from the heart of the continent to the Antilles by way of the Amazon and the sea was not a particularly hazardous nor difficult one.

In addition to these voyages by small groups of Europeans, there have been within the historic period great Indian migrations, for which the Amazon supplied the main artery of travel. Some of these set out in search, not primarily of gold, but of a *terre-sans-mal*, «où les hommes vivent toujours jeunes et immortels, où tout pousse sans effort . . .». Métraux has discussed several mass movements of the Tupi-Guarani from the sixteenth century on, not the least spectacular of which was the migration, in 1539,

¹ Medina, p. 50 et seq; p. 105 et seq.

² U. S. Pilot Chart of the South Atlantic, 2600.

of about twelve thousand Tupi-Guarani who left the coast of Brazil and ascended the Amazon in search of this earthly Paradise. Ten years later, in 1549, three hundred of them arrived in the province of the Chachapoyas in Peru.¹ These movements, within the historic period, of great Indian groups covering in their travels long distances, presuppose earlier wanderings of which there is no record — for religious reasons, perhaps, or for trade, or conquest, or for mere love of moving. The records of early travelers attest, and the archaeology shows, that the Amazon was a busy and well advanced part of the New World.

Of the northern tributaries of the Amazon, the Rio Negro is the largest and mingles its dark waters with those of the Amazon considerably west of Santarem. This river is of peculiar importance, because through its ramifications, direct connections are made between the Amazon and the northeastern seacoast. One of the means by which this is accomplished is the Casiquiare Canal, a natural connection between the upper reaches of the Rio Negro and those of the Orinoco, making it possible to go from one river to the other. This link between the two rivers was traversed by Europeans as early as the middle of the sixteenth century when Lope de Aguirre and his murderous band passed through it on their long river trip from Peru to the Caribbean.²

According to Reid, were it not for the ten miles of rapids between Atures and Maipures on the Orinoco, it would be possible to go by small launch the length of the Orinoco, through the Casiquiare to the Rio Negro, then via the Amazon, Madeira, and Guaporé to within thirty miles of a tributary of the Paraguay, which would open the course to the mouth of the Plata.³ This statement requires some modification. The Casiquiare is sometimes so low it is

¹ Métraux, 1927, p. 21 et seq.

² Bollaert, p. 107

³ Reid, p. 25.

not navigable even by canoes, and in spite of the Rio Negro's great length and sealike expanse in some places, it contains, in others, veritable archipelagoes, with narrow and difficult channels, rapids, sand-bars, etc., requiring not only great navigating skill, but intimate knowledge of localities.¹ However, from the standpoint of Indian traffic, Reid's suggestion is interesting, since the native's skill as a boatman disposes of most of the natural difficulties.

The Madeira also presents navigation problems. It is broken by the Falls of Theotonio, ten miles above San Antonio, and by a series of nineteen rapids over a stretch of two hundred and eleven miles.² However, records of canoe trips through the rapids make it appear they would not offer serious obstruction to Indian traffic;³ Norden-skiöld remarks upon the possibilities of the Madeira as a culture highway between Bolivia and the main body of the Amazon.⁴ Considering the Indian mode of travel and the connections it is possible to make over these great water systems, it is not unreasonable to expect to find similar culture elements at points far distant from each other.

Returning to the discussion of the Rio Negro, there is still another road to the Caribbean by way of that river. This route involves turning into the Rio Negro's great eastern tributary, the Branco; then in turn, following the Branco's eastern tributary, the Takutu; and again the latter's eastern tributary, the Mahu; thence into the Pirara. Lake Amuku, the last of the El Dorados, is really a stretch of savannah which lies between the Pirara and the Rupununi, a western tributary of the Essequibo. The Essequibo flows north through British Guiana into the Caribbean.

¹ Rice, 1918. p. 206.

² Whitbeck, p. 359.

³ Craig, p. 315 et seq.

⁴ Nordenskiöld, 1930, pp. 1, 3.

In the dry season the mythical Golden Lake, with aeta palms marking the courses of its small streams, is traversed by foot; in the wet season these rivulets overflow, and with the concomitant rise of the rivers, a connection is made between the two great systems of the Amazon and the Essequibo, so that small craft may pass from one to the other. This route was first mapped by Nicholas Hortsman in 1738, but it had long been known to the Indians, and the Spanish friar, Cristoval de Acuña, in passing down the Amazon from Peru in 1639, found Indians at the mouth of the Rio Negro using iron tools which had been obtained from the Dutch of the northeast coast by trade with intervening tribes.¹ In 1878 Im Thurn passed from one system to the other in the dry and also in the rainy season, and found traveling difficult in both.² This route, however, probably served the purposes of native trade, and seems to have been the course by which some tribes made their way northward. A case in point is the Tarumas who lived on the Lower Rio Negro in 1668, and were first reported on the Essequibo in 1800.³

In considering possible river highways between Santarem and the Caribbean, it may be well to recall that the Orinoco is a mighty stream, fifteen hundred miles in length, fed by two thousand tributaries including six large rivers, and its delta occupies one hundred and sixty miles of coastline.⁴ In addition, the Magdalena extends like a long arm south through Colombia. Judging on the basis of maps alone, some of its southern tributaries are at no great distance from northwestern members of the Amazon system.

Finally, Trinidad, the largest of the Lesser Antilles, is close to the South American mainland; the greatest distance between the islands in this group is between it and Grenada

¹ Markham, p. 108.

² Im Thurn, 1880, p. 465 et seq.

³ Farabee, 1918, p. 135.

⁴ de Hostos, 1924, p. 240 et seq.

— about 78 miles.¹ Some of the islands are within sight of each other, and canoe traffic must have been greatly aided by the fact that there are many tiny islets scattered between the larger bodies of land.

Summary.

In the foregoing discussion, an attempt has been made to suggest a few of the water routes over which culture elements may have made their way from Santarem to the Caribbean and in the opposite direction. This is, however, a very inadequate picture. If one studies a detailed map of the region between the Amazon and the Caribbean, the most impressive feature is the many possibilities for communication by water. In addition to the main highways, there must have been innumerable lesser thoroughfares through which culture streams trickled over long periods.

On the mainland, there was undoubtedly much trading in every direction. That bits of the Tapajó pottery made their way to the Lesser Antilles seems clearly indicated; that there was a considerable Central American contribution to Tapajó ceramic design likewise seems apparent; whether or not there were other northern areas where pottery design was sufficiently similar to the Tapajó to suggest cultural affiliations between them and the Amazon, is one of the principal problems to be considered in the ensuing discussion.

V. Correlations

In the following pages the writer will discuss possible correlations between the Middle Amazon and certain cultures to the north, chiefly those of British Guiana, Venezuela, Panama, Costa Rica, the Antilles, and some areas of the Southern Mounds.

¹ Gower, p. 7.

She has made no effort to correlate except in cases where the relation between cultures has seemed strikingly close, and for this reason has omitted the Mexican and Mayan areas. Along the Mexican coast there are occasionally instances of similarity to South American forms, but the archaeology of the Highlands, on the whole, is only rarely suggestive of that of the Amazon Valley.

On the other hand, to the northeast, there are large areas, including the Middle and Lower Mississippi Valley, west and northwest Florida, and certain parts of Georgia, the archaeology of which shows striking resemblances to that of the Middle and Lower Amazon. While this, at first thought, may seem a great geographical jump, the northern and southern boundaries of this expanse are frequently linked by the appearance of the same or similar traits in intervening cultures. The following elements of form and decoration at present seem to be the ones most involved as correlating factors between the various areas.

EYE FORMS.

This study was originally undertaken because Nimuendajú called attention to the fact that Fewkes had found in Carriacou a handle of practically the same design as one he had found at Santarem, both of which Nordenskiöld shows in his *Ars Americana*.¹ Another of these handles was found in St. Vincent, Fig. 37-A; while one from Santarem may be seen in Fig. 31-I. This was a rather common handle design in Tapajó sites. Also in MAI there are two agouti heads from St. Vincent, one of which is reproduced in Fig. 37-B; these are so like many agouti pieces from Santarem, Fig. 32-D, as to be practically indistinguishable from them. These pieces, together with another piece shown by Fewkes which appears definitely of Tapajó² origin make it justifiable to

¹ Nordenskiöld, 1930, Fig. 1.

² Fewkes, 1912, Plate 67-B.

assume culture contacts between the Middle Amazon and the Lesser Antilles.

On the other hand, occasionally there appears among Tapajó fragments a piece which looks strikingly Greater Antillean, Figs 30-B, 33-C, 38-D. However if one studies, as the writer did, five thousand pieces from the Middle Amazon, and then begins going through, for correlating purposes, large Antillean collections such as those of the United States

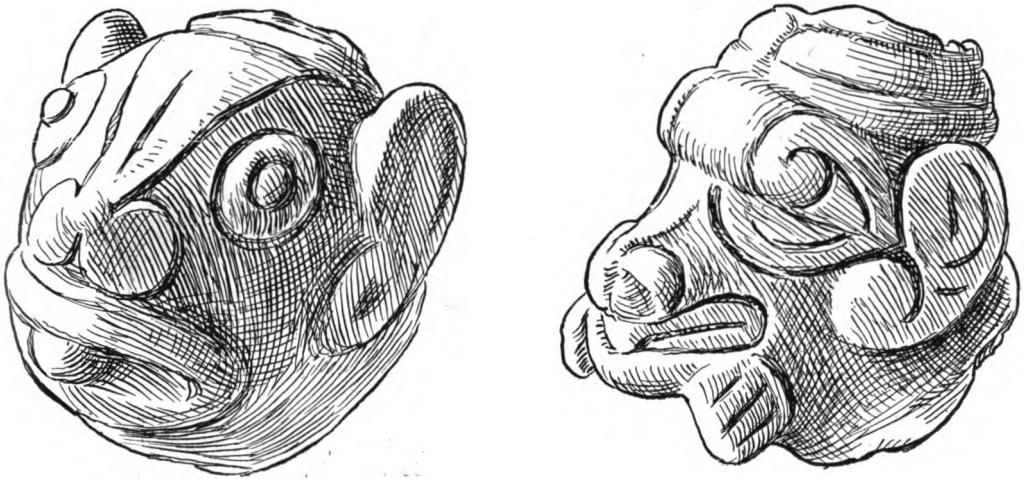


Figure 36. Ossororo Creek, British Guiana. Coll. by Walter Roth
A, Ethn. Mus., Göteborg, 31.24.1, Scale 1/2. B, Ethn. Mus.
Göteborg, 31.24.2, Scale 1/2.

National Museum and the Museum of the American Indian, one is struck not by the similarities between the two areas, but by their dissimilarities.

For a while it was difficult to determine why human and quasi-human heads from Santarem and kindred sites looked so different from similar representations from the Antilles, particularly the Greater Antilles, but finally the eye form seemed to emerge as the element which caused the divergence in effect.¹ For this reason the writer made a numerical

¹ Lovén, p. 233.

study of the Middle Amazonian eye forms based upon the five thousand fragments in the University of Pennsylvania Museum.

Before, however, considering these Amazonian eye forms, it may be well to discuss predominating types in the Greater Antilles. Figure 38-A, B, C, shows forms from Puerto Rico, Haiti, and Dominican Republic, respectively, and there are many similar illustrations in the literature of these areas. Eye forms in Cuban ceramics as shown by Harrington are

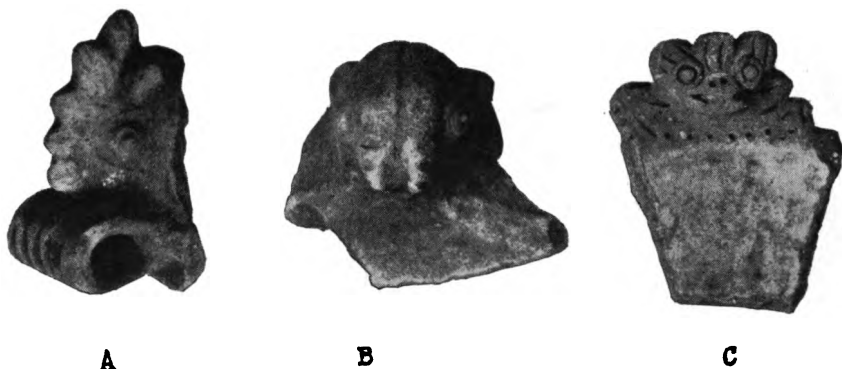


Figure 37. Mus. Amer. Indian. A, 8125, St. Vincent, 6.5 cm. B, 8125, St. Vincent, 6 cm. C, 8/9383, Lale Valencia, Venez. 6.5 cm.

substantially the same as those in the islands just referred to.¹ In the pottery of Jamaica, which Fewkes considered »the most aberrant of the Greater Antilles»² the eye is sometimes a mere gouge; in more skillfully made pieces it appears as a button with a central pit, or an elongated form made of a ribbon of clay extended and doubled back leaving a long central open space.³ In his study of the ceramics of the Dominican Republic, Krieger describes eye forms as follows:

¹ Harrington, Vol. I, Fig. 31, Pl. XLIII; Vol. II, Fig. 82, Pl. LXVIII.

² Fewkes, 1912, p. 259.

³ de Booy, 1913, Pl. XXXIII.

Two types of eye modeling may be noted in addition to simple punctate forms. The eyes are formed with a raised ribbon of clay in roughly circular position. The ridge is flat-surfaced or beveled, and is surrounded with an incised circular depression; within is a circular depression or pit, rarely a slit. Again, the eye is represented with a distinctly bulging expression, due to the beveled surface of the circular ribbon of clay representing the orbit. The pit is also smaller, and the outer or incised groove is lacking.¹

These two types of eye are found in the Middle Amazon, and have been grouped in the Stylistic Analysis under »Doughnut Eye, Styles A and B»; the former appears forty-six times, the latter twenty-eight times. Only a few examples, however, are found on pieces of good workmanship, Figs. 30-B; 31-A and B; 33-C.

The form of eye which is characteristic of the Tapajó culture is the round-rimmed protuberant type, shown in Figs. 32 and 33, and in Nordenskiöld's illustrations of Santarem pottery.² The material in the Pennsylvania collection is not one hundred per cent Tapajó but contains a small proportion of pieces which lack Tapajó characteristics of both paste and design; however, out of the collection as a whole, seventy-one per cent of the pieces representing anthropomorphic and zoomorphic heads have this type of eye. In addition, it was frequently used for purely decorative purposes.

The round-rimmed protuberant eye has been reported from Trinidad but apparently was not common there nor in the other Lesser Antilles, although the pieces from Carriacou and St. Vincent previously referred to, have it. It is the eye form of these fragments which distinguishes them from other pottery of this region and suggests they were trade pieces which made their way north from Santarem. The round-rimmed protuberant eye was either very rare or absent in the Greater Antilles.

This eye characterizes some of the pottery found by Im

¹ Krieger, 1931, p. 84.

² Nordenskiöld, 1930. Plates XXVI, XXX, XXXI, XXXII.



Figure 38. *A*, U. S. Nat. Mus. 220661, Puerto Rico, approx. length 10 cm. *B*, U. S. Nat. Mus. 348950, Haiti, approx. height 10 cm. *C*, U. S. Nat. Mus. 341025, Dominican Republic, approx. height 9.2 cm. *D*, Ethn. Mus., Göteborg, 24.16.4.c, Cocal, near Santarem, coll. by Nimuendajú.

Thurn »on the east coast of Demerara»;¹ Roth also found it in British Guiana, Fig. 36. It is occasionally found in the Lake Valencia region of Venezuela, Fig. 37-C, but more particularly to the west in the state of Falcón, from which district Nomland shows several examples.² It has been reported from Colombia where it serves as body decoration on a pot from La Gloria;³ it is common in the pottery of the Dutch West Indies;⁴ in Chiriqui it is sometimes used as neck ornament;⁵ in Costa Rica it is quite frequently used on heads and has been reported also as a decorative device.⁶ Spinden does not record this eye among the early types from the Valley of Mexico,⁷ and out of a large number of heads published by Vaillant, there are only one or two instances of eye forms which could be so interpreted.⁸ Basing judgment upon these facts and also upon the archaeological material exhibited in the National Museum, Mexico City, it would seem that the round-rimmed protuberant eye was rare in this area. The absence of it is one of the reasons why Mexican pottery looks so different from that of the Middle Amazon.

Strangely enough the round-rimmed protuberant eye appears in well developed form in certain parts of the Southern Mounds, especially Georgia and Florida, and an oval-rimmed protuberant form has been reported from Avenue, Arkansas, directly on the Mississippi River.⁹ From north-eastern¹⁰ and southeastern Georgia, it has been reported on

¹ Im Thurn, 1884, Plates 16 and 18.

² Nomland, 1935, Figs. 14-F, O; 15-A, B, D, N, O.

³ Linné, 1929, Fig. 4-A.

⁴ de Josselin de Jong, Plates XVIII, XIX.

⁵ MacCurdy, Figs. 89, 92, 142.

⁶ Lothrop, Pl. CV-A; CXXV-D; CXXXI-B; figs. 122, 130 and others; Hartman, Pl 61-2; fig. 476.

⁷ Spinden, 1917, p. 57.

⁸ Vaillant, 1931, Pl. LXVIII.

⁹ Moore, 1911. Pl. XXXI.

¹⁰ Heye, Hodge and Pepper, Fig. 45.

vessels decorated with head designs,¹ and in these areas it appears also as an element in stamped designs,² while on the coast an applied form is used for decoration.³

In northwestern and western Florida it again appears on heads,⁴ and becomes very common in stamped design.⁵ It has been reported also from the Alabama River.⁶

Reference to the Stylistic Analysis will show that some of these eyes from Santarem were multi-ringed or multi-



Figure 39. Marajó. U. of Pa. Mus. (SA 1936). Approx. height 9 cm.

rimmed, and these stamped designs in the north suggest those southern forms. They also look like certain Marajó fragments decorated with low relief such as Fig. 39.

The round-rimmed protuberant eye was not uncommon in Marajó; it was used there on certain types of large jars ornamented with facial representations, and the eye area was sometimes enclosed in much the same manner as it was on the Tapajó pieces in Fig. 33-B, E, G. This is not a

¹ Moore, 1907, Figs. 14, 16, 25.

² Ibid, 1898, Figs. 15 and 16.

³ Ibid, 1897, Figs. 4 and 23.

⁴ Ibid, 1901, Figs. 10-A, 113-F. 1902, Fig. 265.

⁵ Ibid, 1902, Figs. 34, 41, 80, 141, 148, 173, 272, and others.

⁶ Ibid, 1899. Plate XI. Fig. 59.

widely spread characteristic, although relatively common in pieces from Santarem and kindred sites.

The doughnut eye so characteristic of some of the better known areas of the Greater Antilles, while producing a very different effect from the round-rimmed protuberant type of the Middle Amazon, is linked to it by certain transitional forms. One of these is the round-rimmed protuberant eye with central pit, clearly indicated on the little effigy pot, Fig. 42, from La Mata, near Lake Valencia. This eye form has been further reported from this site,¹ a fact which is important because of Venezuela's geographical location between the Amazon where the round-rimmed protuberant form was dominant, and the Greater Antilles where the doughnut eye was the prevailing type. Also possible influences from southeastern United States may be considered. This form was common in Costa Rica,² but apparently not prominent further north. Another transitional form is the multi-ringed or multi-rimmed eye with a central pit; a few of these are found in the Lesser Antilles. Pits in eyes are rare in the Tapajó culture but become increasingly conspicuous as the Greater Antilles are approached.

The other form of eye numerically important on Tapajó pottery is what Spinden has termed the coffee-bean eye. According to him this type of eye is found from the northern limits of the archaic art in Mexico as far south as Colombia and Venezuela.³ Krieger states that the coffee-bean eye is very rare in the aboriginal pottery of the Dominican Republic.⁴ There were one hundred and eight examples of this form of eye in the Tapajó collection studied.

The writer does not wish to infer by emphasis upon eye forms that eye treatment may be the sole criterion upon which to base cultural connections. What seems to have

¹ Bennett, 1937, Figs. 9 and 10.

² Hartman, Plates 39—2; 51—4; 59—1, 2, 3, 6, 7.

³ Spinden, 1916 p. 51.

⁴ Krieger, 1931, p. 54.

happened in Santarem, and to a greater or less extent in the Arawak area of the Antilles, is that certain eye forms were accepted and so stylized as to become not merely eye representations but a local art expression, which, with other elements, may lend weight in determining cultural affiliations.



Figure 40. Lago Grande, 30 miles west of Santarem Mus. Amer. Indian, 16/6980, Ht. 12 cm.

CRESCENT-BASED FIGURINES.

Reference to the Stylistic Analysis will make apparent there were several forms of female figurines in the Tapajó area. Some of these were solid, some hollow; some represented the figure as kneeling, indicating the legs in a rudimentary way, others showed no legs at all. There must have also been figurines designed to stand, for there are several foot pieces in the UPM collection.

In examining the female figurine material in both Sweden and America, the characteristic of both the complete pieces and the fragments which impressed the writer most forcibly was the crescent shape of the base. This type has no indication of legs or feet, the base being merely a conventionalization of the lower part of the body of a figure which is



Figure 41. U. of Pa. Mus. *A*, 34-25-171, Santarem, Ht. 14.2 cm. *B*, (SA. 1693) Marajó, Ht. 15.5 cm.

kneeling or squatting, with knees far apart. In the complete, or nearly complete ones, the arms are free-modeled, but there are fragments of cruder pieces in which the arm appears not to have been free. The ones shown in Figs. 40 and 41-A, and the one Nordenskiöld shows from the GEM collection¹, which are the best the writer has seen, all have free-modeled arms, no foot nor leg indications, and the hands rest on the abdomen.

Whether or not there were any effigy pots in the Tapajó

¹ Nordenskiöld, P. XXXV-A.

area modeled in this fashion cannot be determined on the basis of the material studied. Some of the bases are punctured, some are not; the two figurines in the American collections have punctures in the head near the ear. So an unpunctured base does not of necessity signify a pot.

It is a curious fact that figurines and effigy pots with crescent-shaped bases and free-modeled arms are distributed over a vast area. On the Upper Amazon a fragment of a crescent base has been reported as far west as the Rio



Figure 42. Amer. Mus. Nat. Hist. 41-0-6029, La Mata, Maracay, Venezuela. Ht. 10.5 cm.

Teffé¹, on the Lower Amazon they appear in a well-defined form in Marajó, Fig. 41-B. That this stylization must have been of some special significance in this area is suggested by the fact that in the Marajó collection in the UPM there is a finished undecorated pot, SA 1661, approximately 12 cm in height which is the exact shape of these figurines from the waist down. It has no sex indications.

In Venezuela, this style of seated figure with crescent-shaped base and free-modeled arms appears both as effigy pot and figurine. The little piece shown in Fig. 42 is an effigy pot found by Bennett in the Lake Valencia region; Requena shows several figurines², in some the arms are free-modeled,

¹ Métraux, 1930 Fig. 9.

² Requena, p. 67.

in others, not; Marcano gives two excellent examples from the valleys of Aragua and Caracas, although the arms are not quite free¹; Lothrop reports one². Also there are some in the Venezuelan collection in Philadelphia.

The only piece from Colombia which the writer has been able to locate is that shown in Fig. 43-A from the Cauca Valley. It has been catalogued as a pot; it may, however, be a figurine. In general form it is close to the one from Marajó.

In Chiriqui, the crescent-based fugurine with free-modeled arms is common; some have the points of the crescent turned up in simulation of feet, others have not, Fig. 43-B. In this area, the figurines are characterized by one puncture in the center of the base, and a long slit under each leg, suggesting they were intended for some definite type of support. The neck also is often pierced. Holmes believes them to have been toys or to have served some religious purpose.³

In Costa Rica there are several types of seated, footless figurines. In the Highlands, a pronounced form of the crescent base is found;⁴ while in the Nicoya Peninsula, the figurines shown by Lothrop are footless, but not really crescent-based.⁵ In Nicaragua, another modification of the type appears, Fig. 43-C; they have been reported from Salvador⁶; and in the USNM there are two pieces from western Mexico, one of which is shown in Fig. 44-A; they seem, however, to have been rare in this region.

The writer discussed with Dr. Vaillant the provenience of this type of figurine in Mexico. He said it was not found in the Highlands, but occasionally it appeared on the coast. There is a little piece in the AMNH (3571 30.2) from the Huastec area of northern Vera Cruz, which has a crescent-

¹ Marcano, Figs. 55 and 56.

² Lothrop, Fig. 148.

³ Holmes, 1884, p. 152.

⁴ Lothrop, Fig. 268.

⁵ Ibid, Pl. CXXV.

⁶ Vaillant, 1930, Pl. XXXVI.



Figure 43. *A*, Peabody Mus., Harvard Univ. 55129, Cauca Valley, Colombia, Ht. 15.2 cm. *B*, U. of Pa. Mus. 29-55-1134, Chiriqui, Ht. 13 cm. *C*, U. of Pa. Mus. 21910, Nicaragua, Ht. 13.1 cm.

shaped base, but its proportions are so different from the others in this series, that it seems far-fetched to include it. There is, however, one piece from Santarem in the UPM which, like the one from the Huastec area, seems to have the head sitting directly on the base without much indication of a trunk. Spinden has discussed a more inclusive group of figurines from these areas.

Curiously enough, the crescent-based female effigy pot with free-modeled arms appears in the Dominican Republic, Fig. 44-B. This piece was found in a cave near Santiago, is slightly hunchbacked, and the vertebrae are indicated. Lovén reports a very similar piece, which is bent forward, if not definitely hunchbacked; it, too, shows the vertebrae¹. Krieger shows a headless piece found in the cemetery at Andres; the back view is not given, but the text states that vertebrae and other anatomical features are indicated on the figurines from this area. Krieger further adds, »Objects illustrated on this plate are unusual in form and design among Santo Domingan aboriginal ceramic wares. They are in the Dominican National Museum and have a provenience in the vicinity of Santiago».

To the north on the mainland, the crescent-based female effigy pot with free-modeled arms has been found in the Mississippi Valley. The piece in question, Fig. 44-C, comes from Bradley Place, Crittenden Co., Arkansas, »on the left-hand side going up of an 'old river', a former course of the Mississippi . . . eight miles above the junction of the two rivers.»² This is the only piece, entirely true to form, which the writer has yet found from this area, but from Pecan Point a few miles north of Bradley Place and directly on the Mississippi, Moore shows two others which are crescent-based, the arms of which are almost completely free-modeled.⁴ So,

¹ Lovén. Pl. XVI.

² Krieger, p. 69 et seq; p. 154; and Pl. 8.

³ Moore, 1911, p. 427.

⁴ Moore, 1911, Figs. 72 and 73.



Figure 44. *A*, U. S. Nat. Mus. 198355, Etzatlán, Jalisco, Mexico, Ht. 17.7 cm. *B*, Mus. Amer. Indian, 12/7442, Santiago, Dominican Republic, Jar representing seated female human figure. Ht. 17.7 cm. *C*, Mus. Amer. Indian, 17/4161, Bradley Place, Arkansas, Ht. 17.7 cm.

seemingly, it was a type which was emerging in this region. In all these pieces from Arkansas, the legs are indicated in a rudimentary way by bentback strips of clay, suggesting the relation of the crescent-based form to the kneeling figure. The pot from Bradley Place is hunchbacked and the vertebrae are indicated.

It is hard to know where to draw the line in discussing the possible relation between the effigy pots and figurines of the Mississippi Valley and the crescent-based effigy pots and figurines further south. Holmes, as well as Moore, shows a series of these forms from the Middle Mississippi Valley;¹ also there are large collections in the USNM and in the MAI, while the UPM has a considerable number from the Missouri Mounds. Most of these pieces are pots and most of them are hunchbacked, but some are figurines and some are not hunchbacked. The pieces that come from the southern part of the Middle Mississippi Valley are more definitely crescent-based than those further north, and the modeling is much more highly developed, also their bases are flat. Some of the Missouri pieces seem to be almost two bowls, one placed on top of the other, with arms and legs in low relief and an indentation between the knees; the bottoms are somewhat rounded. From Tennessee little images and amulets which are crescent-based have been reported, and pipes in this area are frequently held by kneeling figures.² The crescent-based effigy pot in well developed form seems to be limited to a small area directly on the Mississippi and in northern Arkansas.

Some of the modifications which occur in the Mound Area occur also in northern South America. Moore shows a pot from Moundville which is crescent-based, and in which the legs are indicated, the hands resting on the knees.³ Roth shows a little figurine found in northwest British Guiana,

¹ Holmes, 1898. Pl. XLIV, XLV.

² Jones, Figs. 71, 72; Thurston, Fig. 72.

³ Moore, 1907, Fig. 28.

which is very similar to the Alabama piece. Unfortunately Roth's piece is shown in profile, but the writer examined it in the British Guiana Museum; it has a flat crescent-shaped base, which is perforated in the center, and it contains a pellet. The arms are not free-modeled.¹

The writer has never seen any figurines from the Amazon which are hunchbacked, and the crescent based ones from Venezuela do not seem to have this characteristic; however, the large male effigy pot, Fig. 4-A, is a hunchback and the vertebrae are well defined; this piece does not, however, come into the crescent-based classification.

The significance of the distribution of the crescent-based figurine and effigy pot is not clear. In considering it one point should be kept in mind — the estimate of its frequency on the Amazon is based not only upon complete pieces, but upon sherds as well, while in other areas it is based upon pieces on exhibition in museums or on published examples, most of which are whole pieces; it may, therefore, have been more common in some areas than the evidence would seem to indicate. It seems, however, that the place where this type of figurine is both most abundant and most highly stylized is the Chiriqui-Costa Rican region; on the other hand, in the Middle Mississippi Valley one could make a good case for the evolution of the type. The writer is well aware that any solution of this problem must depend not only upon distribution, but upon chronology. To the latter she cannot contribute anything beyond the statement of Dr. Bennett that of the three strata he was investigating in the Lake Valencia region, he found the crescent-based form only in the uppermost.² As to distribution, it is seemingly not found farther south than the Amazon, farther north than Arkansas, and in South America it appears to be limited to the territory east of the Andes.

¹ Roth, Fig. 35.

² Bennett, p. 113.

THE CARYATID.

A distinctive feature of Tapajó ceramics is the caryatid. Several years ago Linné suggested that this element might serve as an indication of cultural connections between Santarem and Central America.¹ It seems possible, however, that it may be of even greater significance.

Before an attempt is made to discuss caryatids, it may be well to define the term, since it is sometimes loosely used in considering American pre-Columbian art forms. Strictly speaking a caryatid is a free-standing, or almost free-standing sculptured female figure designed to support some superstructure.² The perfect example seems to be those Maidens of the Erechtheum who gracefully bear the weight of the porch roof above them. The writer is not inferring any relation between Old and New World art, nor comparing in any way the the classic of Greece with that of early America, but since the term «caryatid» is in general use to designate certain ancient American art forms, a working definition of it is necessary. It may, therefore, be possible to agree to consider as a caryatid form any free-standing or almost free-standing human, or quasi-human figure designed as the sole support of some structure or surface, the definition being applicable to both stone and pottery representations. Occasionally zoomorphic forms, usually birdlike in design, are used as supporting elements; these, however, are customarily modified to assume human attributes.³ There is also one jaguar stool in the USNM, but generally speaking, the supports under consideration are anthropomorphic in character.

There is more than one possible approach to the problem of the caryatid in America. It is conceivable that in cultures where pottery-making and stone-cutting were prominent arts and man was the only burden-carrying animal, the idea of the human form as a support might have evolved inde-

¹ Linné, 1928, p. 88.

² Sturgis, p. 458.

³ Hartman, Pl. 42; Mac-Curdy, Pl. XLI-F; Lothrop, Pl. II, Fig. 251-B

pendently in several places, or might even have been produced without much evolutionary background. The everyday life of the people was replete with this kind of suggestion. On the other hand, the caryatid might have gradually evolved among a people active artistically and so situated geographically that their influence made its way more or less naturally through the medium of trade. A consideration of the form caryatids take in various areas may help somewhat in the solution of this problem.

In Tapajó ceramics the caryatids are all of two general types: a little squatting human figure with elbows on the knees, and the hands raised to the face, usually, but not always, covering the eyes, Fig. 31-F; and another form really a sub-type of the first, and equally as good esthetically, in which the arms have been lost in the conventionalization process, Fig. 31-H. It would seem that the last-mentioned type was the later of the two; but in both cases it is clear that the caryatid idea was well established among the Tapajó, its function was understood, and there was no inartistic fumbling in its expression. As far as the writer knows, in this culture the caryatid always rested on a medially constricted annular base and the number used appears always to have been three, Fig. 1. It must have been a common element since unattached caryatid pieces are plentiful in both the Göteborg and the Pennsylvania collections.

At the northern extreme, also, of the areas under consideration the caryatid has been found, Fig. 45. It was not highly developed there and probably was not common; the writer has, however, made no systematic search for this element in Mound pottery, but merely chanced across this piece from the Middle Mississippi Valley. It consists of three anthropomorphic figures resting on a ring base and supporting a bottle.

The kneeling figure of unknown origin, Fig. 46, but believed by Fewkes to be Antillean, probably from Haiti or Puerto Rico, presents an advanced and satisfying type of human



Figure 45. U. of Pa. Mus. 11563, Missouri. Ht. 17.5 cm.

support. Fewkes states that »the Antillean features of the image are so suggestive that its culture origin is well nigh proved by them,» and adds that in the opinion of Seler, Holmes and Saville it is not Mexican. This figure may have been part of a table, or a kneeling idol with head form expanded into a surface for votive purposes.¹

In Yucatan, the human form as a support was, in certain instances, well developed. In the Temple of the Warriors

Nineteen Atlantean figures and nine stone posts constitute the altar support. The Atlanteans are squat little human forms in the

¹ Fewkes, 1901, p. 348 et seq.

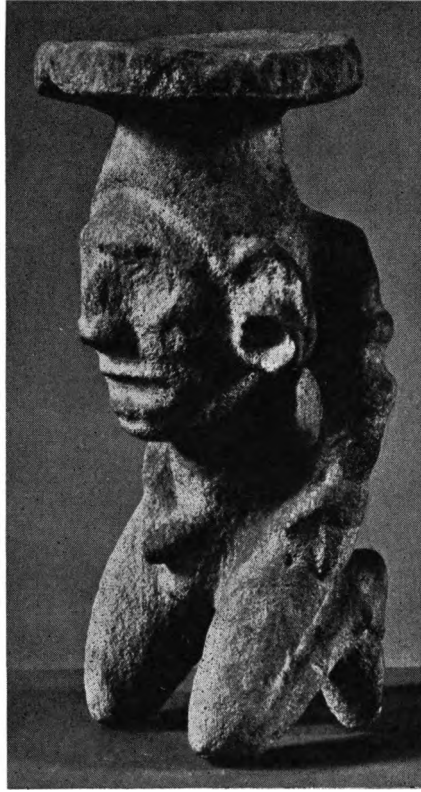


Figure 46. Amer. Philosophical Society, no number, Puerto Rico, Ht. 32.5 cm.

full round with upflung hands, not carved free from the heads. However, there are exceptions; the southwesternmost has the left arm standing clear of the matrix.¹

In the Temple of the Tables -

The most extraordinary feature — — — is a series of accurately cut limestone tablets held up by human figures of caryatid-Atlantean type 30 inches high and ranged along the outer margin of the floor space on the margin of the terrace — — — — The dwarfish figures are well sculptured in elaborate costumes and stand

¹ Morris, Charlot, Morris, Vol. 1, p. 19 and Fig. 6.

with both hands aloft, giving a broad surface for supporting the slabs.¹

On Cozumel Island near the present town of San Miguel there is a little temple in which a less well defined caryatid form is found. Here a kneeling female figure constitutes the lower part of a monolithic support, the figure, the column and the capital having been carved from one piece of porous limestone.² To what extent the caryatid and near-caryatid form served as a major element in the architecture of this area, the writer is not prepared to state. It is interesting to note that Preuss shows two monolithic columns from San Augustin, Colombia, the lower parts of which are carved into anthropomorphic forms suggesting as does the figure at San Miguel, the caryatid in evolution.³ Atlantean figures have been reported by Squier and Bovallius from Zapatera Island in Lake Nicaragua.

At Manabi, Ecuador, there were highly developed caryatid forms in the stone seats which were supported by both anthropomorphic and zoomorphic forms, and in some very fine incense burners.⁴ Two of the latter, shown by Saville, consist each of a crouching animal from whose back rises a column at the top of which is a receptacle. Such a form suggests relation to the near-caryatids of San Miguel and San Augustin.

At first, Saville believed the seats at Manabi to be unique, but later related them to the whole stool-seat-metate complex in which supporting figures in stone, wood, and clay were referred to by early explorers over a vast area beginning with Florida on the north and extending down through the West Indies, Central America, Panama, Colombia, Venezuela Dutch Guiana, Brazil, Ecuador and Peru.⁵

¹ Holmes, 1895, p. 134 and Fig. 41.

² Ibid, p. 65.

³ Preuss, Pl. 24.

⁴ Saville, Vol. I, Pl. XXXII.

⁵ Saville, Vol. I, p. 24 and Vol. II, p. 88 et seq.

The pottery and stone work of Chiriqui and Costa Rica supply examples of many stages and varieties of caryatid development, and for this reason, these areas afford the best material for consideration of the evolutionary aspects of the problem.

An approach to such a study may be made through MacCurdy's illustrated discussion of the evolution of stools and metates, the basic principle being first to lighten the mass in order to make it easier to handle. He says:

The simplest kind of mealing stone is a flattened river boulder such as is still used by the Talamanca Indians of Costa Rica and Chiriqui. In order to lessen the weight of the metate and render it more transportable, as much as possible of the base was removed . . .

He goes on to say that one method of accomplishing this was to hollow out the base, and that in some cases the weight was further reduced by »cutting windows in the sides and ends.«¹

It might be plausible to suppose that the decoration of the perpendicular supports produced by the »cutting of windows« gradually took on anthropomorphic characteristics, and the caryatid so resulted. Certain Costa Rican stools seem to bear evidence of this type of evolution.²

It is possible, also, to recognize other developmental stages between the simple hollowed-out stool and the perfected caryatid support. Although the writer can give no information concerning the chronology of the stools shown in Fig. 47, they all come from Chiriqui and suggest possible stages in caryatid evolution which are paralleled in other stools from the same district and also from Costa Rica. Accepting, therefore, as the first stage in stool development, the simple hollowed out mass of clay or stone, the second stage might consist of some such form as Fig. 47-A, in which there was some effort to beautify by simple decoration and by cutting

¹ MacCurdy, p. 27 et seq.

² Joyce, 1916, Pl. VII, Fig. 3. and Lothrop, Fig. 98.

the sides into vertical panels. Perhaps the third stage might be the application to these panels of a quasi-human form merely as a decorative device without any supporting function, form B. In a more advanced expression, the width of the vertical column might be lessened, and the anthropomorphic figure used in the intervening spaces, form C. Finally, the geometrical support might be entirely removed, producing the true caryatid, from D.

While there are many caryatid and near-caryatid forms in this area, beautiful and well-adjusted ones are rare. Hartman shows a fine piece from Costa Rica in which the supporting elements are bird-like, but conventionalized into forms which seem appropriate;¹ Lothrop gives a good example of the grotesque caryatid form.² Frequently, however, the real supports are posts, or plain or fretted sections and anthropomorphic or zoomorphic figures fill in the spaces between them. The caryatids of Costa Rica are usually a mass of restless zoomorphic figures, not well suited to the function involved, while those of Chiriqui are irresponsible, half-human forms often standing on their heads or otherwise unmindful of the business at hand — that of carrying a load. This is in keeping with the spirit of Chiriquian art, which was produced by a people who, according to MacCurdy, did not believe in taking this world too seriously.³ Nordenskiöld, however, shows one Chiriquian stool in which the caryatids are very similar to those from the Tapajó area.⁴

Another element which should be considered in studying these northern caryatids is the inconstancy of the number used. The clay stool, Fig. 47-D, has five; MacCurdy shows two stools from Chiriqui,⁵ and Lothrop two from Costa Rica

¹ Hartman, Pl. 42-4.

² Lothrop, Fig. 251-B.

³ MacCurdy, p. 165.

⁴ Nordenskiöld, 1930, Fig. 7.

⁵ MacCurdy, Pl. IV.



Figure 47. *A*, U. S. Nat. Mus. 132333, Rio Chiriqui Viejo, Chiriqui. Ht. 13.2 cm. *B*, U. of Pa. Mus. 29-54-800, Chiriqui, Ht. 12.5 cm. *C*, U. of Pa. Mus. 29-52-1003, Chiriqui, Ht. 12 cm. *D*, U. S. Nat. Mus. 115351, Gariche, Chiriqui, Ht. 16.6 cm.

which have four;¹ Holmes describes one with four posts and four caryatids;² Fig. 47-C of this study has three posts and three caryatids, while Lothrop reports two bowls which are supported by three caryatids standing alone;³ finally in the USNM there is a stool from Chiriqui in which the supporting elements are two animal forms, possibly jaguars. There, therefore, seems to have been no definite number element connected with these northern caryatid designs.

As far as the writer knows there were no stools in the Tapajó culture, although there are three important collections which she has not yet seen. The caryatid vessels in the Swedish and American collections all have three supports and no intervening posts, and the caryatids are always little squatting human figures, sometimes with, sometimes without, arms. All the caryatids from this area rest upon medially constricted annular bases. Not any of the caryatids in the north, as far as the writer has been able to ascertain, rest upon medially constricted annular bases but rather upon ring bases.

The Tapajó may have borrowed the caryatid idea from Central America, but in Santarem the form is much better adjusted to function than it is in most of the Chiriquian and Costa Rican pieces, and on the Amazon it had become highly stylized while in the north it had not. It seems the Tapajó may have accepted the caryatid idea after it had matured in the north, and adopted a definite expression of it which they used in conjunction with the medially constricted annular base, deriving the idea of an acceptable number of caryatids from the familiar tripod pot.

RING BASE AND COLUMNAR SUPPORT.

At a site on the Red River in Lafayette Co., Arkansas, Moore found two small vessels each supported by four undec-

¹ Lothrop, Fig. 250.

² Holmes, 1884, Fig. 231.

³ Lothrop, Fig. 251.

orated cylindrical columns attached to a ring base.¹ This type of vessel does not, as far as the writer knows, appear in Santarem or other Tapajó sites. However, in the Requena collection, there is a vessel from Lake Valencia, Venezuela which is supported by three pairs of cylindrical columns attached to a similar ring base; also, Nomland found fragments of a flattened ring base with attached cylindrical supports in the State of Falcón, Venezuela.² There is a piece from Pichincha, Ecuador (MAI 343 D), in which a dish is supported by four undecorated columns attached to a ring base. De Booy reports from Trinidad a little head piece which apparently served as the connecting link between the base and bottom of a pot. This form may be regarded as intermediate between the true caryatid and the columnar support under consideration.³

In Costa Rica and Chiriqui the ring base is common, but it is usually associated with caryatids or fret-like devices. In northern South America, also, there are certain modifications of the combination of ring base and columnar support: Requena shows two from Venezuela,⁴ and Linné reports three from Colombia.⁵

Judging from the Middle Amazonian material studied, the only type of free, plain, geometrical support used for attaching a vessel to its base, was a flat rectangular piece; the number employed was two, and they were used in conjunction with the medially constricted annular base. This type of support was used in Fig. 5-B, although in the plate the bird decoration rather obscures this fact. An embellished form and something nearer to the caryatid in character may be seen in Fig. 6.

The ring base with free-standing geometrical supports

¹ Moore, 1912, Figs. 98 and 99.

² Nomland, 1935, Fig. 4-O.

³ de Booy, 1918, Pl. VIII, Fig. E.

⁴ Requena, pp. 75 and 107.

⁵ Linné, 1929, Figs. 2-B; 6; 7-E.

was, therefore, not an Amazonian characteristic, but seems to have belonged to areas otherwise affiliated with the Amazon. To the far north, in addition to the two pieces reported by Moore and previously referred to, Thurston shows a bottle from Lebanon Tenn., which has three bulbous legs attached to a ring base.¹ As suggested in the study of caryatid development, these geometrical supports were probably older than the caryatid forms, and since they seem not to appear in the Tapajó culture but to be replaced there by caryatids, the implication would seem to be that the Tapajó culture reached the Amazon after the simple device of a ring base and columnar support had been outgrown.

FOUR-LOBED VESSELS.

In the Tapajó culture there are some curious little vessels which perhaps are best described as four-lobed, Figs. 24, 25, 26, 27. The only similar vessels which the writer has thus far located come from northwestern Florida, and Fig. 48 represents one of two complete pieces reported by Moore from this area.² Two other closely related forms have been found on Crystal River on the Florida west coast.³ In addition several fragments from western and northwestern Florida suggest they may have been parts of vessels characterized by lobular protrusions; one of these is decorated by concentric rings at the tip of the lobe as are the pieces from Santarem shown in Figs 24⁴ and 25. Further to the west, from Red River sites in Arkansas different types of four-lobed vessels have been recovered; in these cases also the lobes are decorated with concentric rings.⁵ Moore reports a beautiful long-necked vase from the Ouachita Valley, Louisiana, Fig. 50. Each of the four lobes at the base is decorated with a

¹ Thurston, Fig. 45.

² Moore, 1902, Fig. 15.

³ Ibid, 1907, Fig. 7 and 1903, Fig. 32.

⁴ Ibid, 1901, Fig. 75.

⁵ Ibid, 1912, Figs. 61 and 98.

scroll design which gives the effect of concentric rings and the neck is similar to the bottle necks from Santarem illustrated in Fig. 29-K.

There is another form of four-lobed vessel which is conspicuous in northwestern Florida, but which, as far as the writer knows, does not appear in the Tapajó culture. If, however, one visualizes cutting through horizontally the four-lobed vessels from Santarem and partitioning off the



Figure 48. Mus. Amer. Indian, 17/4009, St. Marks, Wakulla County, Florida. Diam. 18.4 cm.

lobes, the result will be substantially the same as the design of the Florida vessels.¹

In this connection it may be worth noting that there was as tendency to tetrapod supports in Florida, and Gower states that the sacred number in the Antilles and in the adjacent parts of both continents was four.²

The striking resemblance between the four-lobed vessels of Florida and those of the Amazon is puzzling due to a seeming lack of connecting links in the intervening areas.

¹ Moore, 1902, Figs. 1, 61, 200, 244, 268.

² Gower, p. 43.

However, a lobular four-mouthed bottle and also bottles having four nodular protrusions have been reported from Chiriqui.¹

THE DOUBLE-HEADED MOTIF.

Conspicuous among Tapajó sherds are double-headed pieces which probably served as rim decoration. These are sometimes double-headed ormithomorphic forms such as the one shown in Fig. 31-D; sometimes, however, two different zoomorphic heads emanate from the same body; sometimes one head is zoomorphic and the other is anthropomorphic. In the Pennsylvania collection there are sixteen of these pieces from Santarem and twenty-five from Lago Grande, and all are of excellent workmanship.

In Venezuela, the double-headed bird appears in the Lake Valencia region, but seems not to have been common there. Bennett shows two fragments,² and there is one small piece in the MAI, Fig. 49-A. In shell it has been reported from the state of Falcón.³

The double-headed motif was common in Chiriqui: MacCurdy gives examples of it in metal, in painted design, and in whistles.⁴ Holmes also reports it from this area.⁵

To the north, in Costa Rica, double heads again appear. Lothrop gives illustrations in painted design and in double effigy whistles.⁶ Double effigy whistles have been found also in Ulua Valley of Honduras, Fig. 49-B. Double-headed figurines have been reported from Highland Mexico.⁷

While double head decoration was common in Santarem, whether or not double effigies were also characteristic of the

¹ Holmes 1884, Fig. 127; MacCurdy, Pl. XXXVII.

² Bennett, 1937, Fig. 9.

³ Nomland, 1935, Fig. 20, B and C.

⁴ MacCurdy, Figs. 329, 361, 209, 215, 216, 219, 291.

⁵ Holmes, 1884, Figs. 255, 269.

⁶ Lothrop, Pt. I, Figs. 64, 77, 78; Pt. II, Figs. 269 and 272.

⁷ Vaillant, 1935, Fig. 110.

culture it is difficult to say on the basis of the collections studied. The only double effigy piece the writer has seen is the jaguar jar shown in Fig. 10; however, the numerous jaguar heads found in all the collections, and also pieces with curled up tips which it is possible to interpret either as feet of vessels or as jaguar tails, make it seem probable that they were not uncommon.

Some definitely two-headed forms, and others which might be so interpreted, have been reported by Fewkes from a sup-

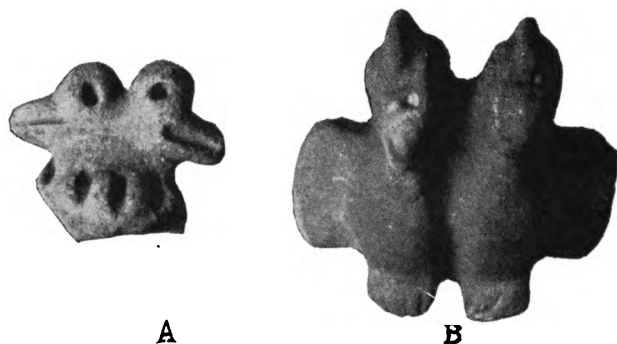


Figure 49. Mus. Amer. Indian. *A*, 6/8930 Lake Valencia, Venezuela, Ht. 3.5 cm. *B*, 18/3202, Ulu Valley, Honduras, Ht. 6.5 cm.

posedly pre-Carib site in St. Vincent; these pieces he designates »problematical objects» and states they are made of soft volcanic tufa.¹ Lovén shows two »Antillean» stone pieces, one double-headed, the other a double effigy.²

To the north on the mainland, the double-headed motif appears in well developed forms. In copper it has been found as far north as Ross County, Ohio, from which locality Shetrone shows two examples;³ in incised design it appears in Red River sites in Louisiana, from which area it has been twice reported. Moore states that this is a flood area from

¹ Fewkes, 1912, Pls. 39, 40, 57.

² Lovén, Pl. XIV.

³ Shetrone, P. 185 and text Fig. 72.

which very little pottery is obtainable so it is possible that it may not have been rare there.¹ Holmes shows one instance from Florida;² in Florida it appears also as modeled decoration.³

There is another form of the double-headed motif, several examples of which Moore reports from Black Warrior River sites in Alabama. This form consists of two bird heads, one upright, the other upside-down; the necks are united in a common body from which a wing projects on either side at right angles to the necks. The heads are turned in opposite directions, and the whole presents a partial swastika effect.⁴

The writer does not recall having seen this type of double-headed form on Middle Amazonian pottery, but it does occur in slightly modified form in Highland Costa Rica: Hartman shows several examples, some are bird motifs and some are not,⁵ and Lothrop gives several illustrations of this same principle in connection with the Chiriqui alligator motif found on Costa Rican pottery, and remarks that »in that region, two heads, facing in opposite directions, are frequently joined together.«⁶ He reports the same motif in a plumed serpent design from Nicaragua.⁷

Another type of two-headed design, which is substantially the same in principle, but which lacks swastika effect, is the two-headed monster pattern. This is common in Highland Costa Rica.⁸ To the best of the writer's knowledge it does not appear in the Tapajó area, but Mordini has called attention to the fact that certain painted Arawak pottery from

¹ Moore, 1912, p. 484 and figs. 6 and 9.

² Holmes, 1898, Pl. LXXX.

³ Moore,⁶1902, Fig. 281.

⁴ Moore, 1905, Figs. 9, 113, 118.

⁵ Hartman, Pl. 6, Fig. 4-A; Pl. 29, Fig; Pl. 74, Fig. 3; Figs. 284 and 286.

⁶ Lothrop, Pt. II. p. 308, and Pl. CLIII, Fig. 195, B.

⁷ Ibid, Pl. XCII.

⁸ Ibid, Pt. II. p. 300 and Pls. CXCIX, CLI, CXCIV, and Fig. 212; also Hartman, Pls. 30, 32, 56, 77, 78, 83.

the mouth of the Amazon suggests in design the two-headed monster motif of Costa Rica.¹ Thus again the Mounds are linked to the Amazon by way of the Isthmian area.

THE SIGMOID SCROLL.

Another basis for considering possible culture connection between the Tapajó area and certain sections of the Southern



Figure 50. Mus. Amer. Indian, 17/3248, Glendora Place, Ouachita Parish, Louisiana. Ht. 14.5 cm.

Mounds, is the generous use in both regions of the S-shaped or sigmoid scroll. In the Mounds it seems most prominent in the Middle and Lower Mississippi Valley, the Gulf Coast and Florida;² it appears also on sherds from the Etowah Site in Georgia;³ apparently, however, it was less conspicuous

¹ Mordini, p. 17.

² Holmes, 1898, Pls. LII, LIII, LIV, LXXXII; also C. B. Moore's publications.

³ Moorehead, 1932, Fig. 80.

toward the east. Sometimes this scroll appears as painted design, sometimes it was incised with a fine instrument, but often a coarser one was used producing an effect which resembles low relief.¹ In the Mounds this scroll decoration was often skilfully done and the simplicity and purity of its expression gives the pottery considerable charm, Fig. 50.

The sigmoid scroll appears also in the Tapajó culture, sometimes in incised design and sometimes in relief; examples of the former may be seen on the collar of the bowl, Fig. 20-A. It appears also, occasionally, on the long necks of such vases as Fig 6, and on bases, Fig. 28-A, C. In a broken form it is more common, and may be seen as collar decoration, on the large bowl, Fig 13-A, and also on the caryatid bowl, Fig. 1-B.

In relief, this scroll is more conspicuous. Tapajó pottery is less simple in general conception than Mound pottery, and the sigmoid scroll, though a major motif in its decoration, lacks the directness of expression found in designs to the north. The two dishes, Fig. 11, illustrate this point. The elements of the sigmoid scroll are used here, but the major motif is interrupted by a sub-motif and the S effect is lost. In addition to these dishes, there are several fragments in the UPM collection which seem to have been decorated with this interrupted sigmoid. The upper band of scroll decoration on the bowl Fig. 20-A, is not sigmoid in character; the lower band is the true sigmoid type.

In the Amazon Valley the use of the sigmoid scroll was not limited to Santarem and adjacent sites. In a letter to the writer, Mr. Nimuendajú states that in 1928, while investigating an old Indian dwelling site on the right bank of the Rio Tocantins near Patos, he found potsherds decorated with this S-shaped motif. These fragments were sent to Göteborg, and, in the notes which accompanied them, he called attention to the fact that the decoration was similar to certain

¹ Moore, 1908, Fig. 62.

scroll designs in the Red River area as shown by Uhle.¹ Eight years later, in 1936, Dr. Mordini, without knowing anything about Mr. Nimuendajú's findings, wrote the latter, remarking upon the resemblance between certain painted scroll designs on the ceramics of Cunany, on the coast of Brazilian Guiana (Goeldi Est. I N. 7 a; III N. I a), and the scroll designs shown by Lothrop from Highland Costa Rica, and also those from Red River, Louisiana.² This was the same design which Mr. Nimuendajú had found on the Rio Tocantins. In the Marajó collection in the UPM the S-shaped scroll appears in well-defined form in incised decoration on two large jars, and is beautifully executed in low relief around the rim of a shallow dish. Thus it would appear that this form of scroll had a considerable distribution in the eastern Brazilian area.

Mr. Nimuendajú's letter was accompanied by a drawing of the sherds referred to, and he remarked that the fragments were decorated not only with the sigmoid scroll but with a pyramidal stepped design characteristic of Marajó. This stepped design has been reported by Holmes as one of the decorative motifs found in the Middle Mississippi Valley, and he shows three long-necked bottles, the bodies of which are decorated with painted sigmoid designs, though slightly different in pattern from the one Mr. Nimuendajú found, and the necks of the same pieces are ornamented with stepped designs; one bottle has feet cut in the form of steps.³ This same basic design has been reported also by Moore from St. Francis River, Arkansas; the Ouachita Valley, Louisiana; and from Cedar Keys, Florida.⁴ In the Mounds, there seems to be usually a semicircular sub-motif at the base of these stepped pyramids; sometimes, however, there is a square submotif in the center of the design. The writer is not suf-

¹ Uhle, Fig. 10.

² Lothrop, Pl. CLIX, Figs. A, D, E.

³ Holmes, 1898, Pls. XVI-B; XLI.

⁴ Moore, 1909, Fig. 57; 1910, Pl. XXVI: 1918, Fig. 41.

ficiently familiar with Marajó pottery to know whether or not these variations occur there.

The sigmoid scroll is found on yellow-line ware from Las Mercedes, Costa Rica, but is much less conspicuous in this area than it is in the Mounds.¹ It has been reported also from Chiriqui, sometimes in broken, sometimes in unbroken form.² It appears in simple form on pottery from Trinidad and has been reported also from the Dominican Republic.³

Thus while the sigmoid scroll seems to appear intermittently all the way from the Middle Mississippi Valley to the Amazon, including the Greater and Lesser Antilles, it is more highly developed and more frequently used in the Mounds than in any of the areas to the south.

The South American distribution of «la double volute», has been discussed by Métraux in his study of the Chiriguano:

La double volute a été peinte sur quelques vases de Tacna . . .

Sur des vases trouvés à Calama et provenant sans doute de Cagua (Yura, province de Porco, Bolivie) et dans la région même de Cagua . . on voit un ornement en forme de S . . .

Les potières chiliennes ont fait quelquefois usage de la double volute pour décorer leurs vases, mais un usage restreint . . . Ce motif est gravé aussi sur un bloc de pierre de la province chilienne de Antofagasta, entre Sante Fe del Toro et Quillagua . . . Dans la Quebrada Humahuaca, la double volute agrémenta la surface extérieure du *yuro* de la Isla de Tilcara reproduit par Debenedetti . . .

A la Paya, ce motif est figuré sur le fond de deux *pucos* ornithomorphes . . .

In addition, Métraux in his study of Middle and Upper Amazon pottery shows an excellent example from Manaos.⁴

LARGE EFFIGY JARS.

The two effigy jars, Figs. 3 and 4, present an interesting problem. Judging on the basis of the material in Swedish

¹ Lothrop, Pt. II. Fig. 201-A; Pl. CLVII-C.

² Holmes 1884, Figs. 198-A; 279, A, B. and MacCurdy, Pl. XLIV, Fig. A.

³ Fewkes, 1912, Pl. 3, Figs. B and E. Krieger, Pls. 37 and 43.

⁴ Métraux, 1930, p. 419 et seq; 1930, Fig. 23.

and American collections, large effigy jars having anthropomorphic subjects were not common in the Tapajó culture.

The figure to the right is female; it is highly conventionalized and in no sense suggests portraiture. It presents no attempt at anatomical accuracy — four digits are indicated on the hands, six on the feet. The eye employed is the primitive coffee-bean type found on the mainland as far north as Mexico,¹ but also occasionally seen in southeastern United States.² The decoration is black and red concentric rectangles on a light gray background.

In general form, this piece vaguely suggests certain jars reported by Lothrop from the Nicoya Peninsula.³ In decoration, it calls to mind some of the Venezuelan figurines shown by Requena.⁴

In reply to an inquiry concerning the provenience of concentric decoration in the Mounds, Mr. F. M. Setzler of the United States National Museum replied as follows:

Closely spaced lines which sometimes form concentric rectangles is a decorative technique thus far limited to the Marksville complex in Louisiana. We do find, however, certain indications of the more general Hopewellian decorative elements from pottery in northern Florida.

A few pieces with this type of decoration have been reported from Florida by Holmes and Moore;⁵ and it is also occasionally found in Georgia.⁶

Concentric rectangles are not conspicuous in Tapajó decoration, but the beautiful little vase, Fig. 13-B, shows an incised form of this motif.

The figure to the left on the same plate is closer to portraiture, an element of which there is little if any other evidence in the Tapajó material the writer has seen. This piece is of

¹ Spinden, 1928 p. 57.

² Heye, Hodge, Pepper, Figs. 17 and 43.

³ Lothrop, Pl. CV, Fig. D; Fig. 73-A.

⁴ Requena, p. 131.

⁵ Holmes, 1898, Pl. LXXXIV, Fig. E; and Moore, 1903, Fig. 154

⁶ Heye, Hodge, Pepper, Fig. 35.

peculiar interest because it is the only one from the two sites represented in the UPM upon which an oval-rimmed protuberant eye is used.

Much of the effigy pottery of Peru suggests portraiture, and the eye on these jars is modeled naturalistically and with skill. However, many of the effigy jars shown by Schmidt, though anthropomorphic in subject, make no pretense of true portraiture, but come into much the same category as this one from Santarem. In these Peruvian pieces the oval-rimmed protuberant eye is used.¹ The round-rimmed protuberant eye, so common in Santarem, is frequently found in Peru also, but it is almost always used on zoomorphic forms. The piece Schmidt shows on page 214 is a double vase, one part consisting of an anthropomorphic head with oval-rimmed protuberant eyes, resting on a globular body decorated with fish and bird forms which have round-rimmed protuberant eyes. The same distribution of eye forms is used on this Santarem jar — the oval-rimmed eye on the human head, the round-rimmed protuberant form on the little animal head on the pouch carried over the arm.

Some effigy pots from the Lower Mississippi Valley are similar to this one although the eye form is different. However, the oval-rimmed protuberant eye has been reported in well developed form from a Mississippi River site in Arkansas.²

This pot has two other distinguishing features which may be seen from its representation in profile: first, it is a hunchback; second, the vertebrae are indicated. Neither of these characteristics is common on the Amazon; one hunchbacked figurine has been reported from Venezuela, but they are not common there either;³ however many of the Mississippi Valley effigy jars are hunchbacked and not infrequently

¹ Schmidt, pp. 214, 220, 249, 252, 298, etc.

² Moore, 1910, Pl. XX; 1911, Pl. XXI.

³ Linné, 1937, Fig. 2.

the vertebrae are indicated. This is true of Fig. 44-C of this study. There is much hunchbacked pottery in Peru, how often the vertebrae are indicated the writer does not know. The small effigy pot from the Dominican Republic shown by Lovén, Pl. XVI, as well as the similar one in this study from the same area, is slightly hunchbacked and shows the vertebrae.

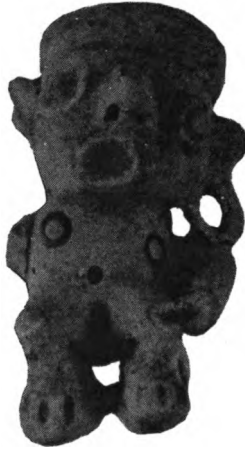


Figure 51. Santarem. Ethn. Mus., Göteborg, 24.16.40 a, Ht. 6 cm.

In spite of their seemingly divergent styles, it is probable that both of these effigy jars are Santarem products. The element they have in common is the form of the ear. This distended ear lobe without ornament is found in metal figures from Peru; in pottery this form of ear is apparently rare there and elsewhere in the areas under consideration. However, in the Göteborg collection, there is a little piece, possibly a caryatid, Fig. 51, which has this form of ear, suggesting it represented a stylization peculiar to the Middle Amazon. These effigy jars, particularly the female one, do not look

strikingly like the other Tapajó material in the Swedish and American collections, but their ear form seems to indicate their common Amazonian origin.¹

DECORATIVE FLANGES BELOW THE RIM.

Tapajó vessels frequently show a decorative extension below the rim or at the base of the collar. This is not a simple

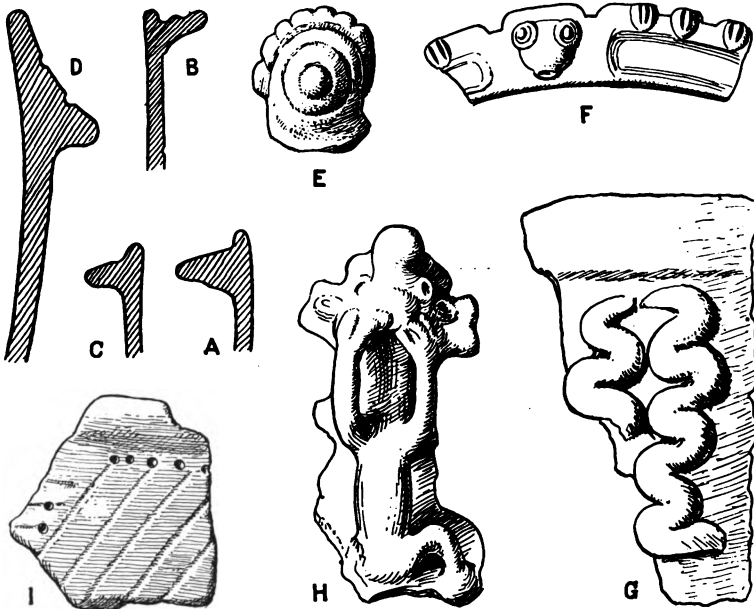


Figure 52. British Guiana, Coll. by Walter Roth. Ethn. Mus., Göteborg. *A*, 31.24.293, Ht. 2 cm. *B*, 31.24.413, Ht. 3 cm. *C*, 31.24.304, Wauna, Ht. 2.3 cm. *D*, 31.24. Kumaka, L. 6 cm. *E*, 31.24.213, Ht. 3.5 cm. *F*, 31.24.233, Koriabo, L. 8.5 cm. *G*, 31.24.83, Ht 10 cm. *H*, 31.24. *I*, 31.24.364, Ht 5.3cm.

flange for the support of an overturned bowl, but a purely ornamental device. Sometimes the extension is quite close

¹ Narcoy reproduce el retrato de algunos orejones del Rio Napo, en los cuales las orejas agujereadas recuerdan a las de las figurillas humanas de Santarem. Los *ccotos* y *anguteros* (tribus de estos orejones) agujereaban enormemente el lobulo inferior sin poner ornamento. Serrano, p. 202.

to the rim and curves out from it; often it is lower down on what may be considered the shoulder of the vessel, as many pieces having this characteristic seem to have been rather shallow, Figs. 28-G. A series of graduated extensions is not unusual. Frequently the dish is surrounded by an ornamented hollow cylinder, Figs. 11-A, 28-B. Sometimes there is a decorative flange around a bowl on the line of its greatest circumference, Fig. 29-D, J.

One of the reasons why pottery from certain sections of the Mounds so strikingly suggests that of the Middle Amazon is the presence of this decorative flange. In a simple form it appears in the pottery of Nacoochee Mound in Georgia where it served a handle function.

Ridge handles consist of elongate projections beneath the rim. They are plain or ornamented and sometimes are hardly distinguishable from the rim itself . . .

Knob handles are more or less similar to the ridge handles but are shorter.¹

Moore shows several pieces from the west and northwest coast of Florida which have true flanges.² These flanges, though simpler in style than those of Tapajó pottery, are decorated, and produce a general effect similar to pieces from Santarem and its vicinity. Two little pots from Florida having this characteristic may be seen in Fig. 53.

The decorative flange has been found also in the Ulua Valley, Honduras, Fig. 54. This is a rather shallow bowl and suggests in profile some of the fragments from Tapajó sites. It is in reality a fish effigy dish, and is interesting to consider also in connection with fish representations from Santarem.

From the Pacific area of Nicaragua and Costa Rica, Lothrop shows several tripods which are characterized by a decorative extension at the shoulder.³ As far as the writer

¹ Heye, Hodge, Pepper, p. 65 and Figs. 36, 39, 40, 41.

² Moore, 1902, Fig. 124. 1903, Fig. 3. 1918, Pl. 15, Fig. 12.

³ Lothrop, Pt. I, Pls. XCIX, C; Pt. II, Pls. CIX-E, F, CXCI, Fig. 126.



A



B

Figure 53. Mus. Amer. Indian. *A*, 18/252, Warrior River, Taylor County, Florida, Ht. 9.2 cm. *B*, 17/1459, Fowler Landing, Levy County, Florida. Ht. 15.2 cm.

knows these have no real counterpart in Santarem, although there were tripods in the Tapajó culture. There are not enough, however, of any of the flanged fragments under discussion to determine the type of vessel of which they were a part. Amongst Chiriqui pottery pieces are sometimes seen which have a decorative extension around the body of the vessel on the line of its greatest circumference, thus relating them to such Santarem pieces as Fig. 13-A.¹

In UPM there are some large pots from Santa Marta, Col-



Figure 54. Mus. Amer. Indian, 18/3681, Ulua Valley, Honduras. Diam. 10.6 cm.

ombia, which are undecorated, but which have a flange below the rim. Dr. J. A. Mason states that this flange was for the purpose of supporting an overturned bowl serving as a lid; Linné, however, shows a flange from Trigana, Colombia, which is more of a decorative nature.

More to the east the decorative flange appears in British Guiana where it characterizes pottery fragments found by Roth, Fig. 52—A, B, C, D. These Guiana pieces are of coarse brown paste, but in Roth's Guiana collection, now in Göteborg, there is another piece in the true Tapajó style, and made of the fine hard-baked clay so characteristic of that culture, Fig. 51-F. This is a rim fragment and not a flange, but it suggests trade connections between the Middle Amazon and areas to the north.

¹ MacCurdy, Pl. XXXII-A; LXI-B; Fig. 246.

CONCENTRIC DISHES.

Two interesting and, as far as the writer has been able to ascertain, unique pieces are the concentric dishes, Fig. 15. While their form is the same, their decoration is sufficiently different to warrant the assumption that either one is older than the other, or that they were made by two related or adjacent cultures with different stylistic traditions.

The lower one, Fig. B, represents Tapajó design at its best. It is the deeper of the two dishes; the bird heads and zoomorphic design on the broad handles are characterized by the round-rimmed protuberant eye. There are several fragments of these broad handles in the Pennsylvania collection and also many bird heads of this type, so it is possible that this form of dish was not rare.

The decoration on the upper dish is not altogether characteristic of Tapajó pottery. It has the spanning bird heads as does the other, but on these heads the doughnut eye is used, and the rim decoration consists of designs in which the doughnut eye is the principal element. The inside of the outer rim is decorated with diagonal incised lines and pits. The technique is somewhat crude in comparison with Fig. B. To the writer, this piece seems a combination of Arawak and Tapajó design.

The concentric dish may have originated on the Amazon, since forms similar to it are difficult to find. It is possible this design may have developed from the grooved rim which is markedly characteristic of Middle Amazon pottery, Figs. 16 and 29-E, H, or it is conceivable that it may be related to such forms as Fig. 56-A from Marajó.

MULTIPLE HANDLES.

In the best of Tapajó pottery there is a tendency toward the use of handles for decorative purposes. This may be seen in the concentric dishes Fig. 15; and in the large bowl which was originally a tripod, Fig. 16; and in a similar bowl

shown by Nordenskiöld.¹ On all these pieces four handles were used. In the UPM collection there are many bird heads which apparently served to span similar grooved rims or the space between the outer and inner dishes in concentric forms. In addition, there are several other pieces similar to Fig. 29-L, which were apparently handles used on the outside of pots. The arcs of these fragments suggest that the pots to which they belonged were fairly large; thus the handles probably had more of a decorative than a utilitarian function.

In the Requena collection, there is a bowl-like vessel from the Lake Valencia region, which has four primary handles, and four secondary ones, and the handles are of a decorative type. Linné shows a Cuna incense burner with four handles; just how large this piece is the text does not state, but from the general design it would appear that extra handles were added with decorative intent; he reports also a four-handled jar from El Cementerio, Colombia.² Some curious three-handled jars have been found in the Cauca Valley, but the handles on these are sturdy and probably were intended for the insertion of a strap.³

Multiple handles though reported from both Chiriqui and Costa Rica were rare in these areas,⁴ but in the Middle Mississippi and the Ohio Valleys extra handles are conspicuous and they have been reported also from Alabama and Florida.⁵ Often the number of handles used was four, sometimes it was eight, but frequently more. These extra handles were usually plain and fairly substantial and could have been used for the insertion of a cord; often, however, they are small and purely ornamental. There is one type, decorated with pits, which suggests, in a measure, the spanning handles of the Amazon⁶

¹ Nordenskiöld, 1930, XXIX-B.

² Linné, 1929, Map. 16 and Fig. 55-C.

³ Wassén, 1936, p. 44.

⁴ Holmes, 1884, Figs. 51-F and 136; Hartman, Pl. 22-2.

⁵ Ibid, 1898, Pls. XI, XII, LXII, CX, CLXIII.

⁶ Moore, 1911, Fig. 36.

The multiple handles of the Mississippi Valley were, as far as the writer knows, simple geometrical forms. However, bird heads were used in handle position in this area; and further to the east, particularly in northwestern Florida, bird heads were commonly used.¹ Moore shows, also, a bird effigy-bowl from Moundville, Alabama, on which the neck is so curved that the beak touches the bowl forming a handle-like effect;² there is the beautiful stone vessel which he has termed »the Portland vase of prehistoric art in the United States,» in which the head of a woodchuck is bent to produce the effect of a handle; and from the Apalachicola River which forms the boundary between Georgia and Florida he shows a bird head very similar in design to Fig. 29-L.³

HOLLOW RIMS.

The hollow rim presents an interesting problem in culture relationships, Fig. 28-D. It has not been found archaeologically in the Greater Antilles,⁴ but has been reported from the Dutch West Indies.⁵ In northern South America it becomes more common, having been found in the northwestern Venezuelan sites of Coro, El Mamon, La Maravilla, and Hato Viejo. These rims are described as inrolled and associated with large vessels.⁶ The hollow rim has been found also in the vicinity of Lake Valencia by both Bennett and Osgood. In these cases the rims are outrolled.⁷ The hollow rim was well developed at the mouth of the Amazon.⁸ In what ap-

¹ Ibid, 1901, Figs. 42, 113, 114; 1902, Figs. 16, 136; 1908, Fig. 27, and Holmes, 1898, Pl. XX.

² Ibid, 1907, Fig. 76.

³ Moore, 1905, Fig. 168; 1903, Fig. 92.

⁴ Krieger, Letter.

⁵ de Josselin de Jong, p. 70 et seq. Figs. 23, 23-A; Pl. XXI, Fig. 9.

⁶ Nomland, 1935, p. 11 and Fig. 15.

⁷ Bennett, Letter. Osgood, Letter.

⁸ Linné, 1928, Pl. I, Fig. 2.

pears to be an outrolled form, it was found by Nordenskiöld on funerary urns at Tarupayu, Bolivia.¹

Hollow rims on Tapajó pottery in UPM are outrolled, and judging from the arcs of the fragments, belonged to rather large vessels. The low relief elements with which they are decorated are very similar to hollow rim decoration from northwestern Venezuela.

There are about sixteen fragments of hollow-rimmed vessels in the combined material from Santarem and Lago Grande in the UPM collection. In addition there are several pieces from each site in which the technique seems to have been attempted without complete success — that is the rim is hollow at one end and closed, or partially closed, at the other. The number of attempted and accomplished hollow rims suggests that this form must have been common in the Tapajó culture.

The hollow cylindrical shoulder decoration is another expression of this same technique, Figs. 11-A and 28-B. In the case of Fig. 11-A, the cavity encircling the shoulder is so incorporated into the body of the bowl, that were the bowl not broken, the cavity would not be suspected. These hollow decorations as well as hollow rims were probably designed to hold pellets. This is true of the piece previously referred to from Marajó.

The hollow rim and the grooved rim with spanning handles such as those shown in Fig. 29-E, H, are clearly related, because the grooved rim may be regarded as a hollow rim from which the top has been cut except at certain intervals where it serves a handle function. Concentric dishes may also be a development of the hollow rim idea. Multiple handles were used with both the grooved rim and with the concentric dish, Figs. 15 and 16.

Where the true hollow rim first came into use or whether it was independently invented in areas vastly remote from

¹ Nordenskiöld, 1924, p. 27.

each other must be the subject of further research. However, the germ of the idea is apparent in North America. In the Mississippi Valley there are cooking pots on which the handles are so numerous and so close together they look like a hollow rim from which pieces have been cut;¹ from an old site in Nebraska, some fragments have been reported on which the handles are below the rim, and have apparently been made by forcing a cane or other cylindrical instrument through soft clay and cutting away parts of the outer surface.² The same technique has been reported from the Nacoochee Site in Georgia.³ Though decorative in effect, these multiple handles probably originated in an effort to facilitate carrying by the insertion of a cord. It is conceivable that hollow rims may have developed from this same technique.

Further study in rim designs and rim techniques in the Mounds is the only way light may be thrown on this matter; also careful consideration should be given to the pottery of the Dutch West Indies, where the true hollow rim is found, but where it is apparently cruder than Venezuelan and Amazonian forms.

SUPPORTS.

Foot Forms.

A striking characteristic of the tripod pottery of both Panama and Costa Rica is the Atlantean foot. In these northern cultures this type of foot is highly developed and often well designed; frequently it is slit or perforated, and usually contains some rattling device.⁴ In the UPM collection there are no tripod pots, and none which show with certainty tripod markings; but there are two large bowls in the GEM col-

¹ Holmes, 1898, Pl. XII.

² Ibid, Pl. CLXXVII.

³ Heye, Hodge, Pepper, p. 61.

⁴ Lothrop, p. III and Pl. CLXXX, Fig. E; MacCurdy p. 51 and Pl. VII.

lection, one of which is reproduced in Fig. 16, and which had three supports of some kind, probably the bulbous type of foot, Fig. 28-E. These feet differ markedly from the more conspicuous types in Costa Rica and Chiriqui in that they are not slit, do not contain rattling devices, and have little or no decoration, and are curled up at the tip.

The other form of foot which appears in the Tapajó area is the looped foot, Fig. 28-F. It has been reported from Ecuador¹ and was well developed in Panama and Costa Rica; also there are three pieces with this type of foot in the MAI, from the Ulua Valley of Honduras. In the north these feet are usually either ribbon-like or tube-like in form, their proportions remaining constant throughout the entire length of the loop, and they are associated with tripod vessels,² although a tetrapod vessel with a loop-like foot was recovered at El Mamon, Venezuela.³ On the Amazon there is always a marked contrast in diameter between opposite sides of the loop, and while these feet do not impress one as strikingly similar to those of the Isthmian cultures, a looped form of support is sufficiently unusual to make its appearance in the Tapajó area important.

Bases.

The predominating types of bases in the Tapajó culture are the medially constricted annular base and the flaring annular base. Linné discusses the wide distribution of the annular foot, and shows it to have existed all the way from the Middle Mississippi Valley to Bolivia, having been common in Mexico, Central America and all over the Inca Empire. He makes the following interesting comment:

It is remarkable that vessels of annular and columnar feet are of such sparse occurrence outside the areas of the high cultures.

¹ Saville, Pl. LXXI, Fig. 3.

² MacCurdy, Fig. 156 and Pl. XXV; Holmes, Figs. 53 and 158; Lothrop; Pl. CLXXIII and CXCH.

³ Nomland, 1935, Pl. VI.

Their occurrence in northern South America, on the Lower Amazon River and in the Lesser Antilles corresponds with other elements which have emanated from the high culture areas.

He further states that utensils allied to the columnar-footed vessel, such as pottery stands and supports for bowls, occur within part of the area covered by the columnar foot. He includes in this category »hollow, hourglass-shaped cylinders,» or »columnar supports fitted at the top with a



Figure 55. Mus. Amer. Indian, 6/505, Southeastern Arkansas, Diam. 13.3 cm.

concave plate on which the bowl can be placed», and reports such forms from Mexico, Guatemala, Costa Rica, the Colombian Highland, Ecuador, and Trinidad.¹

In the Tapajó material in the UPM there are no true columnar feet, but many medially constricted annular bases, a form always associated with the caryatids, Fig. 1, or geometrical supports used instead of caryatids, Fig. 5-B. These bases are very similar in general design to the pottery rests of Costa Rica,² and in the Marajó collection at Philadelphia there are one or two very simple pottery rests that have this so-called hourglass form. Although the little piece from

¹ Linné, 1929, p. 106.

² Lothrop, Pl. CLXXXVII.

southeastern Arkansas, Fig. 55, was probably a dish rather than a pottery rest, in profile it is very similar to the engraved, medially constricted, annular bases from the Santarem area.

The flaring annular base, another form of the widely distributed annular foot, is also common in the Tapajó culture, as reference to the Stylistic Analysis will show. In the UPM collection these bases are plain or decorated by incised lines, figures in low relief, paint, or combinations of these elements, but are never perforated. In the Göteborg collection, however, there are two pieces which are perforated, Fig. 28-A,C. Perforated flaring annular bases are found in Venezuela but are rare there.¹ Linné shows one from northern Colombia and two from the Garachiné district in Panama,² they appear in the Chiriqui pottery, but seemingly are not very numerous;³ but in Costa Rica they are common.⁴

More to the northward, the perforated flaring annular base appears on the Arkansas River not far above its junction with the Mississippi, from which district Moore shows two examples on shallow dishes,⁵ and again in the Green River Valley of Kentucky where it supports a globular bottle with a long neck, the body of the bottle having a simple head design in relief on each side.⁶ Also, Holmes shows two long-necked bottles from Arkansas; these, too, are supported by perforated flaring annular bases.⁷ The point of interest concerning these bottles, is not altogether their perforated flaring annular bases, but the combination of a long-necked globular or fruit-shaped bottle resting on a flaring annular base — these are the contributing elements to such Tapajó forms as those

¹ Requena, p. 159.

² Linné, 1929, p. 254, and Figs. 37-F and 44-M.

³ Holmes, 1884, Fig. 52-B; and MacCurdy, Figs. 158 and 159.

⁴ Lothrop, Fig. 209 and Pl. CLVII-A; Hartmann, Pls. 21-3, 27-1, 41-4, and others.

⁵ Moore, 1908, Figs. 56 and 57.

⁶ Ibid, Fig. 25.

⁷ Holmes, 1898, Pl. XV., Figs. B-D.

discussed under Larger Pots, Type III-B, and illustrated by Figs. 5-A, C.

This assemblage of elements appears in Costa Rica,¹ but seems to have been negative in Chiriqui, and Requena shows no bottles of this type from Venezuela.

The tripod form.

As has been previously stated, there are no tripod pots in the UPM collection, and no pots bearing the marks of three feet on their bases. In the GEM collection, however, there are two large pots (Fig. 16 and Nordenskiöld),² which were tripods, and from their size, suggest that they were supported by short substantial feet.

The tripod vessel is found over a vast area:—

... In North America these vessels are sparingly met with in the south-western regions. They are of more frequent occurrence around the Mississippi, although by no means abundant, whilst in Mexico and Central America they are very common. As we go farther south they become more sparse. In Colombia they are fairly scarce, whilst again in Ecuador they form a very considerable proportion of archaeologically recovered ceramics. They constitute one of the many correspondences that are found between the cultures of Central America and the equatorial regions. East of the Andes they occur sparingly, although future investigators may well be able to establish connecting links between Central America and the archaeological sites in Lower Amazonas and those in Mojos, in Bolivia.³

One more area must now be added to the previously accepted distribution of the tripod. In the summer of 1937 the writer saw in the Barbados Museum at Bridgetown a very fine boatshaped tripod vessel, almost complete, which was found by E. M. Shilstone in a shell heap on the south shore of the island. From this same site have been recovered other vessels, more fragmentary, but unquestionably tripods.

¹ Lothrop, Pls. XCIV., Figs. C, E, G.

² Nordenskiöld, Pl. XXIX-B.

³ Linné, 1929, p. 111 et seq; map 7.

The occurrence, archaeologically, of the tripod over such a territorial expanse naturally suggests the problem as to whether this form spread gradually by culture contacts or whether it was invented independently in several places. Linné and Vaillant¹ evidently accept the former theory. MacCurdy, however, in discussing the forms of metates, points out there were two ways of lightening the crude natural form of stone: first, hollowing it out; second, chipping away all but three points of support, three being the fewest which will give stability to a vessel.² The tripod idea might have developed also from resting a vessel on three stones for cooking or other purposes. These seem such simple devices the question arises whether the tripod, in itself, is a substantial basis upon which to rest claims of culture connection. However, the tripod was a common form in Panama and Costa Rica, the Tapajó apparently borrowed the caryatid from this area; since the number of caryatids used by them on a vessel was always three, it is possible that the tripod and caryatid forms journeyed to the Amazon in company.

THE ELBOW PIPE.

There are two pipe bowls in the UPM collection. How indicative these may be of cultural affiliations it is difficult to say, as there is nothing in the design of either of them that is especially characteristic of Tapajó ceramics.

With regard to the distribution of the elbow pipe in the United States, Linton states it was the dominant form in the eastern area and in the Great Plains.³ Many have been reported also from the Mississippi Valley. It has recently been found in northern Mexico,⁴ and while it was not used by the Aztecs, it is found archaeologically in the Valley of Mexico in what was probably the Toltec culture.

¹ Vaillant, 1932, p. 13.

² MacCurdy, p. 27.

³ Linton, p. 10.

⁴ Mason, 1937, p. 134.

Concerning its use in South America, Mason continues with the following statement:

This type is, however, the characteristic form of smoking implement in use in eastern and southeastern Brazil, Paraguay, Uruguay, and northern Argentina. Pottery pipes of pre-Columbian times are frequently found in these regions, though probably then, as at present, the usual type was made of wood. The best of these pipes come from the Calchaqui region of northwest Argentina.¹

To this should be added that Bennett reports a modeled bowl from a pipe of the angular type found at La Mata, Venezuela, and remarks that modeled clay pipes are common in the Requena Collection.² Dr. Mason recently informed the writer that there seems to be archaeological evidence of the elbow pipe at Santa Marta, Colombia, and possibly also in Panama.

FISH EFFIGY BOWLS.

There is but one piece of this type in the UPM collection; it has a round bottom and shows no signs of ever having had any kind of support, Fig. 22-A. In Göteborg, however, there is a much larger fish effigy dish, Fig. 12; it rests upon a modified flaring-ring base.

Holmes shows an effigy fish bowl from Chiriqui which he says stands on three small feet;³ a less well defined form has been found in the Ulua Valley, Honduras, Fig. 54. Fish effigy bowls seem, however, to have been common in the Mississippi Valley, and some are close in style to Fig. 22-A. Several come from Arkansas, either directly on the Mississippi, or on tributaries of it in that state.⁴ They have been reported also from the stone graves of Tennessee,⁵ and Holmes shows two in his discussion of Middle Mississippi Valley pottery without designating their sites.⁶

¹ Ibid, 1924, p. 8 et seq.

² Bennett, p. 120.

³ Holmes, 1884, Fig. 108.

⁴ Moore, 1908, Pl. XV; 1910, Fig. 23; 1911, Fig. 32.

⁵ Thurston, Pls. VII, IX.

⁶ Holmes, 1898, Pl. 23, Figs. A and B.

THE HANDS-TO-FACE MOTIF.

One of the most striking characteristics of the ceramic design of the Middle Amazon is the upraised position of the hands in anthropomorphic forms, and the paws in zoomorphic forms. Frequently this motif is worked out naturalistically, Figs. 31-F; 32-D; 33-C, D, but often in animal representations the pose is conventionalized, and the paws become a straight band, or give a scalloped effect in profile as in Fig. 32-F, or degenerate into a mere protrusion under the chin.

This hands-to-face motif appears sometimes in Marajó figurines,¹ and has been found archaeologically in British Guiana, both Roth² and Im Thurn having reported fragments with this characteristic from sites in the costal region,³ Fig. 51-H.

In Venezuela this motif is common, particularly in the Lake Valencia area; Bennett and Requena both show examples from this district in which the hands are raised to a canoe-shaped head.⁴ It appears also on a certain type of vase which has a bloated face on the neck; the arms in this case are attached to the shoulder of the vessel and the hands reach up to the face.⁵ Requena shows also four seated figurines in which this motif appears.⁶ In all the Venezuelan pieces the eye is entirely different from the predominant type in the Tapajó culture, being a bulge with a horizontal slit.

There are some vases from Ecuador in the MAI, which have this characteristic: one is from Tunguragua (343a) and has a slit eye, similar to the type so common in Venezuela; another, from Bolivar, has an incised eye (345c); and a third, from Chimborazo, has a round-rimmed protuberant eye such as characterizes the Tapajó culture (345b).

¹ Nordenskiöld, 1930, Frontespiece.

² Roth, Pls. 23, 24.

³ Im Thurn, 1884, p. 60, Fig. 12.

⁴ Bennett, 1937, Fig. 10 and Requena, pp. 39, 57, 65.

⁵ Requena, 49, 61, 85, 91, 103.

⁶ Ibid, pp. 57, 68.

Linné shows two examples of the hands-to-face motif from Santa Barbara, Panama; a seated figurine with coffee-bean eyes, and an applied design on the base of the vase.¹

Upraised hands appear not to have been a conspicuous part of ceramic design in the Lesser Antilles, although the two agouti heads from St. Vincent, previously referred to, which are so similar to those from Santarem, have this characteristic. The hands-to-face motif is, however, of common occurrence in the Greater Antilles; it is particularly prominent in the pottery of the Dominican Republic;² it appears in Cuba,³ Puerto Rico, and Haiti (Figs. 38-A, B, C, and 57-M, O), and also in the crude ceramics of Jamaica.⁴ Krieger remarks that the effigy water jars from the Dominican Republic »show the human figure usually with flat back, head thrown forward resting on the hands, elbows flexed to knee, legs bent upward. . . .⁵ This is the characteristic pose of the Tapajó caryatids.

Judging on the basis of Fig. 13-A which is the only piece in the UPM collection upon which the agouti heads with upraised paws are still intact, the many fragments from the Middle Amazon having the hands-to-face motif were used as adornment though in handle position. In the Dominican Republic and Haiti, this motif is sometimes more conventionalized and comes nearer to a true handle pattern, Fig. 38-B, C. The same can be said of certain Amazonian pieces, Fig. 38-D, for instance; this one, however, is not a Tapajó piece, but more in the Arawakan tradition.

The frequency of the use of the hands-to-face motif may be attributed to its various associations in the Indian mind — the sitting and eating positions of everyday life;⁶ possibly

¹ Linné, 1929, Fig. 40-A; 41-B.

² Krieger, Pls. 18, 23, 24, 31, 36.

³ Harrington, Vol. 2. Pl. 68 and Fewfes, 1922, Fig. 64.

⁴ de Booy, 1913, Pl. 3, Figs. B and C.

⁵ Krieger, p. 62.

⁶ de Hostos, 1923, p. 548 et seq. »Anyone unacquainted with the

with religious ceremonies; and, amongst some tribes, with burial customs. The Tapajó did not bury their dead, but ground up their bones and consumed them. It would thus seem that this motif is an old and widely distributed one, each culture placing upon its own particular interpretation. As an element of design, the hands raised to the face might not appear of much significance from the standpoint of cultural connections, were it not that it seems to cease to have definite stylistic expression at the Isthmus. This motif was apparently not used in the Mound pottery.

BOTTLE NECKS.

A striking feature of Tapajó design is elaborate bottle necks characterized by one or more flanges and a bulbous base, Fig. 5. These ornate necks seem to have been a local development, but a few forms to which they may be related have been reported from the Ouachita Valley, Louisiana;¹ and also from the Middle Mississippi Valley.² These necks are not flanged but have a definite expansion at the base.

Also in the Ouachita Valley is found the bulbous neck with an outward re-curve, Fig. 50, similar in style to the Santarem piece, Fig. 29-K. In both this area and on the

customs and habits of certain sections of the modern populations of Haiti and Porto Rico, and with contemporary accounts of the aborigines at the time of the Discovery, would, on beholding the sculptures, representing beings sitting on their heels, be apt to indulge in elaborate speculation on the significance of the position. However, all mystery fades from the mind of one who has repeatedly seen the country folk of the islands sitting on their heels, especially when at leisure, chatting and telling stories for hours.

The custom is of Indian origin. We learn in the *Apologetica* of Las Casas that it was extensively practiced by the aborigines. In a humid, tropical country infected with «jiggers» and other noxious insects, if they wanted to rest, men would naturally squat, as if to expose the body as little as possible to contact with the ground. •

¹ Moore, 1909, Figs. 83 and 137.

² Holmes, 1898, Pl. XIV-D.

Amazon, these necks are associated with globular bottles; in the Tapajó culture, however, the bottle rests on a flaring annular base; in the north this type is unsupported.¹

There is another form of neck which is fairly characteristic of Santarem pottery and which may be described as »inset», Fig. 11-A. In these pieces there is a cup-like space between the base of the neck and the bowl proper. This method of joining the neck to bowl is strikingly apparent in a piece from western Florida,² and may also be seen in a less well defined form from the Black Warrior River, Alabama.³

Thus far the writer has not been able to find satisfactory evidence of these neck forms in the areas between the Mounds and the Amazon.

THE SCALLOPED PROFILE.

Such pieces as Figs. 11-B and 20-B illustrate another Middle Amazonian characteristic, which the writer is designating »the scalloped profile». It is possible to attribute the origin of such a form to pure love of the curved line, and in design as sophisticated as that of the Tapajó, this could have been the explanation. However, if we turn to the Mounds where simpler cultures obtained, a different line of reasoning is suggested.

From the Mississippi Valley vessels have been recovered which are clearly designed to represent one pot placed within the mouth of another, this to the extent that in some cases there are handles on both the upper and lower pot.⁴ Thus a profile is produced similar to that of the body of Fig. 11-B. On the other hand, when a smaller pot is turned bottom-side-up and used as a covering for a larger pot, an effect is produced similar to Fig. 20-B.⁵ It is also conceiv-

¹ Moore, 1909, Figs. 15, 21, 23, 25.

² Ibid, 1903, Fig. 29.

³ Ibid, 1905, Fig. 128.

⁴ Holmes, 1898, Pls. VII-F; LXXII-F.

⁵ Ibid, Pl. LXXII-B.

able that there may be a relation between such Santarem pieces as Fig. 17 and certain peculiar Florida vessels which are characterized by two bulbous sections connected by a cylindrical section.¹ Some forms in the Southern Mounds seem intended to represent a bottle sitting on a pot;² this



Figure 56. Marajó. U. of Pa. Mus. *A*, SA 1881, Diam. 41 cm. *B*, SA 1995, Ht. 18,5 cm.

type, as far as the writer knows, has no counterpart in Tapajó pottery.

The scalloped profile is fairly common in Central America; sometimes it is simply expressed as it is in the Mounds,³

¹ Moore, 1902, Figs. 48, 251, 269

² Ibid, 1912, Fig. 60.

³ MacCurdy, Fig. 191.

and sometimes with the aid of relief, it takes on anthropomorphic characters.¹

From Venezuelan sites Requena shows many pots which have this characteristic, usually the smaller upper section has a face on it, and often upraised hands connect the body of the pot with a bulbous head portion.² How this particular form may have come into being is suggested by a funerary urn and its smaller pot-cover found at La Gloria, Colombia. In this case the smaller urn was apparently bottomless when placed into the larger one from which the neck had been removed.³ The profile of the combined pieces strongly suggests that of true jars in adjacent areas. Finally, there is a piece from Marajó in UPM, Fig. 56-B, which is close in general form to Fig. 20-B from Santarem, and there are several large pots in Göteborg collected by Nimuendajú from the mouth of the Amazon which are scalloped in profile.

Tapajó pottery had advanced beyond simple basic forms; Mound pottery, on the other hand was sometimes naïve, and the simple household custom of piling up pots for convenience, or covering them for one purpose or another, probably suggested the rather awkward forms in the Mississippi Valley from which graceful types were developed by peoples more advanced.

SIMPLER DESIGNS.

If Figs. 34 and 35 representing fragments from Tapajó sites are compared with Fig. 57 showing pieces from the Antilles, it is evident there is much similarity between the two areas as far as simple rim and body decoration is concerned. Some of these designs are also reported by Holmes in his study of the Mound cultures.

To what extent such designs may be safely used as correlating factors it is difficult to say. It seems that in considering peoples fairly well advanced and capable of rather

¹ Lothrop, Pt. I, Fig. 73-A.

² Requena, pp. 91, 95, 97.

³ Linné, 1929, Fig. 6 and p. 16.

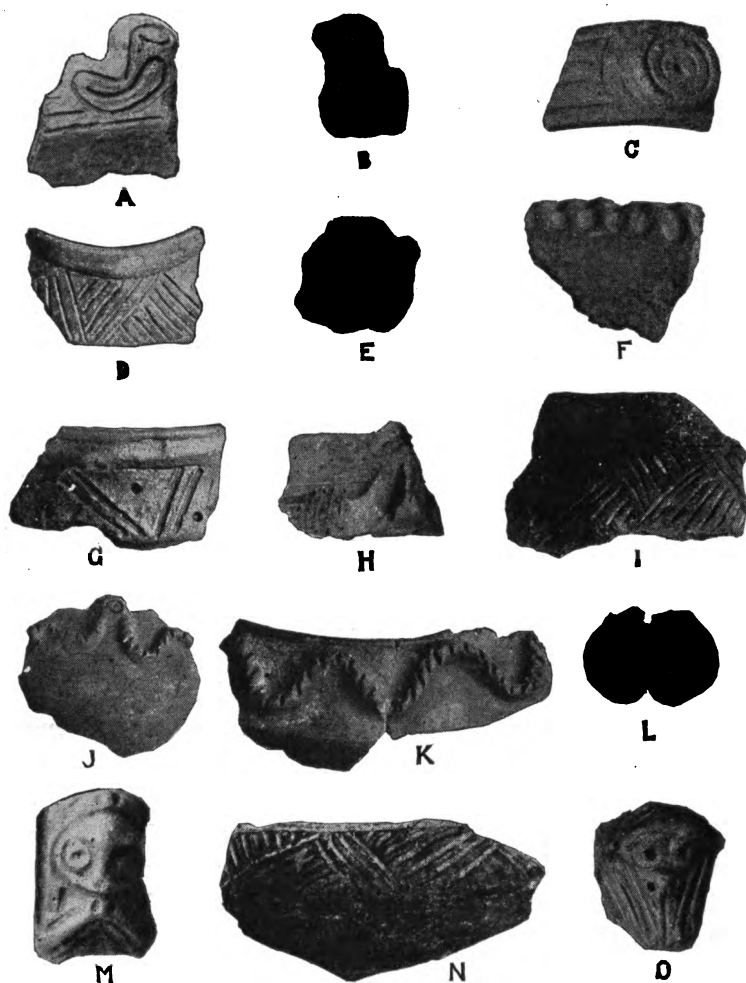


Figure 57. Antillean pieces. A—D, F—L and N—O, Mus. Amer. Indian, E and M, U. S. Nat. Mus. A, 7/2070, Puerto Rico, Ht. 6.5 cm. B, 4/6716, St. Bernard's, Trin., Ht. 5.5 cm. C, 4/6118, St. Bernard's, Trin., L. 7.5 cm. D, 8/3131, San Lucas, Maisi, Cuba, L. 8 cm. E, 22/101, Puerto Rico, Diam. 3 cm. F, 1/1891, St. Vincent, L. 8 cm. G, 4/5007, Ovando, Cuba, L. 10 cm. H, 5/7713 Dominican Rep., L. 6 cm. I, 5/7712, Dominican Rep., L. 11.5 cm. J, 2/8752, St. Vincent, L. 7.5 cm. K, 4/5841, La Patana, Cuba, L. 13.5 cm. L, 2/57, Dominican Rep., L. 5 cm. M, 316454, Dominican Rep., Ht. 6.5 cm. N, 6/1295, Dominican Rep., L. 14 cm. O, 7/2071, Puerto Rico, Ht. 5.5 cm.

complicated techniques, these simple motifs are not of much correlating value, since they might easily develop independently in areas far apart; in studying cruder cultures, not too far distant from each other, such similarities might be more meaningful. It is, however, of some interest to note that concentric circles, snake-like designs, straight lines at alternate angles and digital or tool impressions may be found over a vast territorial expanse; while the pit at the end of lines (Fig. 57-H), so characteristic of the Dominican Republic, is found, though rarely, in the Middle Amazon (Fig. 30-F), has been reported also from British Guiana (Fig. 52-I), and appears also in the Florida Mounds (Fig. 53-B).

VI. Summary

In the hope of presenting this problem more clearly, the writer has attempted to plot geographically the principal motifs and forms which have been considered in the foregoing paper. In order that the chart may not be too cumbersome, areas have been generalized somewhat, and in a few cases, forms have also. Some expression of frequency has seemed desirable in order to indicate certain foci of influence, but further investigation may indicate more or less need of revision in this respect, as collections are scattered and results have been based partly upon collections and partly upon published material. Another difficulty is that there has not been as yet any exhaustive study of the ceramics of Marajó and other islands at the mouth of the Amazon. In addition to the sigmoid scroll, the crescent-based figurine, the stepped pyramid, and the scalloped profile, previously referred to, there are other indications of motifs common to the Southern Mounds and the mouth of the Amazon: these include a cruciform motif, a notched scroll, and perhaps a hand design. However, pending further study, this chart may assist in summarizing typical Tapajó traits, and at the same time indicate their appearance in cultures far to the north.

Tapajó Traits Important as Correlating Factors	Santarem	Mouth of the Amazon	British Guiana	Venezuela	Colombia	Isthmian Area	Mississippi Valley	Southeastern United States	Dutch West Indies	British West Indies	Greater Antilles
Anthropomorphic or zoo- morphic heads in handle position	3	n	1	2	n	2	3	3	2	2	3
Bottles, long-necked on a flar- ing annular base.	3	a	n	a	n	1	3	a	n	a	a
Caryatids	3	a	a	p	1	3	1	a	n	p	1
Columnar support on a ring base	a	n	a	1	1	2	1	a	a	a	a
Concentric dishes	3	n	a	a	a	a	a	a	a	a	a
Concentric geometrical de- signs	2	1	n	2	n	1	2	2	2	p	p
Crescent-based figurines	2	2	1	2	1	3	1	a	n	a	1
Double effigy forms	1	n	n	a	n	2	a	a	n	p	1
Elbow pipe	1	n	n	2	1	1	3	3	n	a	a
Eye forms. Doughnut.	2	n	p	1	2	1	1	1	1	1	3
Same. Round-rimmed protu- berant	3	3	1	1	1	1	p	2	2	1	a
Fish effigy bowls	1	n	n	n	n	1	3	a	n	n	n
Flanges, decorative and below the rim	3	n	2	a	1	1	a	2	n	a	a
Four-lobed vessels	2	n	n	a	n	p	2	2	n	a	a
Handles, multiple, decorative	3	n	n	1	1	1	3	1	n	a	a
Hands-to-face motif	3	1	1	3	2	2	a	a	n	p	3
Hollow cylinder decoration	3	n	n	a	a	a	a	a	a	a	a
Hunchbacked effigy jars and figurines showing verte- brae	1	n	n	1	n	a	3	a	n	n	1
Medially constricted annular forms Bases	3	n	n	a	a	a	a	a	a	a	a

Note: The symbols on the chart are indicative as follows:

- 3 — Frequent occurrence.
- 2 — Less frequent.
- 1 — Rather rare.
- a — Probably absent.
- p — Probably present.
- n -- No data.

Tapajó Traits Important as Correlating Factors	Santarem	Mouth of the Amazon	British Guiana	Venezuela	Colombia	Isthmian Avea	Mississippi Valley	Southeastern United States	Dutch West Indies	British West Indies	Greater Antilles
Same. Pottery rests and dishes	a	1	n	n	n	3	1	a	n	1	a
Necks. Bulbous with out- ward re-curve	2	n	n	p	n	a	3	a	n	a	a
Same. Inset	2	n	n	a	n	a	a	2	n	a	a
Same. Long, bulbous at base	3	n	n	a	n	a	2	a	n	a	a
Rims. Grooved with span- ning handles	3	n	a	a	n	a	a	a	n	a	a
Same. Hollow	3	3	n	2	n	a	a	a	2	a	a
Scalloped profile	2	1	n	3	n	2	2	3	n	n	p
Sigmoid scroll. Unbroken ...	2	2	n	n	n	2	3	1	n	1	1
Same. Broken	2	n	n	n	n	2	a	a	n	a	a
Same. Interrupted	3	n	n	n	n	a	a	a	n	a	a
Stepped pyramidal design.	a	3	n	n	n	1	3	1	p	a	a
Supports. Flaring annular base with perforations ...	1	n	a	1	1	3	1	a	n	a	a
Same. Looped feet	1	a	n	1	n	2	a	a	n	a	a
Same. Tripods	1	a	n	2	2	3	3	2	n	1	a
Two heads laterally opposed	3	n	n	2	n	2	1	1	n	1	1
Two heads vertically opposed	a	1	n	n	n	3	2	a	n	a	a

In discussing a certain stone figure now in the Ethnographical Museum at Göteborg, Nordenskiöld recalls Robert Harcourt's description of a much venerated deity of the Lower Oyapoc. He says:

Les récits de voyage de Robert Harcourt sont du plus haut intérêt pour les recherches archéologiques. Il voyagea dans ces contrées en 1608. Il rapporte, entre autres choses, ce qui lui fut conté par un Indien Comarian: près du rio Wiapoco supérieur, habitait une tribu d'Indiens qui avaient de grandes oreilles. Ils possédaient une statue de pierre adorée comme un dieu. Ils l'avaient placée dans une maison construite en son honneur et entretenue avec beaucoup de soin. L'image de ce dieu avait la forme d'un homme assis sur les talons, avec les genoux écartés, et les coudes appuyés

sur eux. Il avait les mains levées, les paumes en dehors. Le regard était dirigé en haut et la bouche largement ouverte.¹

The little kneeling figure from the mouth of the Arkansas River, Fig. 58, may, or may not, be related to the stone god of northeastern South America, but that he should so nearly correspond to Harcourt's description of that deity is interesting. Also, in general style and eye form, he is similar to the male effigy jar from Santarem. From a site on the St. Francis River, Arkansas, there is another male effigy jar which strongly suggests this same Tapajó piece.²

Finally, Moore gives the following description of a burial he found on the St. Francis River:

Burial No. 3, adult, flexed on the left side, had eighteen curious objects of earthenware, pillarshaped, flat on what are presumably the bases, and slightly concave on the upper ends. They were distributed in groups along the body, and were so poorly fired that they fell apart on removal. Such as were saved range between 3 and 4 inches in length

Presumably this type of object was used as a support for receptacles placed in the fire, to raise them from the ground in order to give the fire full play on the surface of the base.

Doctor Koch-Grünberg figures and describes supports exactly similar to these, except the supports are hollow, as in use among modern Indians of northwestern Brazil to hold vessels from the ground while cooking is going on.

We are indebted to Mr. Charles C. Willoughby for the information that Dr. W. C. Farabee brought to the Peabody Museum, Cambridge, Mass., from his expedition among the Indians of the Upper Amazon region, clay standards 10 to 12 inches in length, which were used as supports for a receptacle in which earthenware vessels were fired.³

As has been previously stated the whole problem of possible connection between the Amazon and the Mounds will have to be more thoroughly investigated. Nordenskiöld remarked upon the fact that in certain parts of the Mississippi

¹ Nordenskiöld, 1930, p. 15.

² Moore, 1910, Pl. XX.

³ Moore, 1910, p. 280 et seq.

Valley it was customary to consume the ashes of the dead as it was in the Middle Amazon; he also noticed the similarity between Chiriqui and Santarem caryatid forms.¹ Nimuendajú, Mordini, and Wassén have recognized decorative features common to the Mounds and the Amazon; Uhle has made important contributions concerning both areas; Linné, Mor-



Figure 58. U. S. Nat. Mus. 63107, Post, Arkansas, Ht. 27 cm.

dini, Mason, and the writer, in a previous paper have correlated certain Amazonian and Central American forms;² and Vaillant has correlated Mound and Central American forms. Gower has studied traits common to southeastern United States, the Antilles and northeastern South America; Métraux and Lovén have discussed Amazon pottery and

¹ Nordenskiöld, 1930, p. 17 and Fig. 7.

² Mason, 1935, Manuscript.

its relation to that of northeastern South America and the Antilles. In this connection it is worth noting that a vessel shown by Métraux from the Rio Teffé¹ is similar in technique and design to one from northwestern Florida.² Spinden has correlated certain North and South American forms.

It is clear that the Tapajó was a composite culture, containing certain South American traditions, such as the hands-to-face motif; on the other hand, it also contained definite northern traits such as the crescent-based figurine, caryatids, the long-necked bottle on flaring annular base, two-headed designs and others indicated on the chart. It is possible, too, there were influences from the west. To these it made its own special contributions in the method of assembling elements, in highly stylized animal representations, in extensive use of the round-rimmed protuberant eye. Just where the hollow rim was invented is not quite clear; it has always been considered a South American trait,³ but some rim forms in the Mounds seem related to it. Hollow cylinder decoration, grooved rims and concentric dishes with spanning handles are seemingly Amazonian developments.

To one who is familiar with Tapajó ceramics, Mound material seems simple and direct and in a formative stage. Tapajó pottery, while containing many elements in common with the Mounds, is ornate, sophisticated, even sometimes a bit decadent — a case in point is the use of the interrupted sigmoid in contrast to the beautiful simplicity of this scroll

¹ Métraux, 1930, Pl. II.

² Moore, 1902, Fig. 258.

³ Questo particolare è di grande importanza come elemto culturale poichè questo speciale procedimento di tecnica ceramica che richiede durante il periodo di cottura del vaso una particolare abilità dell'artefice, sembra esclusivo alla regione amazzonica ed al Venezuela, regioni ove appare essere stato conosciuto sin da epoca molto remota come risulta dagli scavi del Nordenskiöld a Tarupayu in Bolivia in cui sono stati rinvenuti dei vasi con cavità tubolare corrente nell'interno del bordo che appartengo ad un'epoca in cui l'influenza andina non si era ancora fatta sentire. Mordini, p. 11.

in the Mounds, Fig. 50. In technique, Tapajó pottery is sure; this is by no means always true in the Mound areas.

Any logical consideration of connection between the Amazon and the Mounds, must of necessity take into consideration the chronological aspect of the problem. This the writer is unable to discuss beyond repeating the statement previously made that the Tapajó became extinct about the middle of the eighteenth century. Whether the black soil under and around Santarem holds only the remains of the Tapajó and kindred cultures, or whether these peoples had predecessors with unrelated traditions, is as yet undetermined. The latter theory is not without foundation since in the letter from Mr. Nimuendajú previously referred to, he states that in the part of Santarem known as Aldea, he found pottery with Arawakan characteristics, and Lovén has remarked upon the probability that Arawaks were the forerunners of the Tapajó in this region.¹

The problem of who the Tapajó were cannot be solved on a linguistic basis, because the language disappeared with the people. However, it is possible to say who they were not. Mr. Nimuendajú, in discussing this matter in a letter sent to the writer, June 1935, makes the following comment:

Sicher ist, dass die Tapajó und Urucucu nicht die Tupi-Lingua geral sprachen, sonst hätte der Gründer der Mission unter ihnen nicht einen besonderen Katechismus in diesen Sprachen verfassen müssen. Diese Katechismen sind leider verschollen.

It seems, therefore, with the language gone, any clues to the origin of the peoples who contributed to this culture must be sought through the archaeology of their area and such recorded culture traits as old chroniclers have left us, together perhaps with a consideration of burial customs, weapons, houses, religious ideas and other significant ethnic elements in areas which seem affined to this one archaeologically.

¹ Lovén, p. 232.

Bibliography.

BATES, Henry W.

1892. *A naturalist on the Amazon*. London.

BENNETT, Wendell C.

1937. *Excavations at La Mata, Maracay, Venezuela*. Anthropological Papers of the American Museum of Natural History. Vol. XXXVI, Pt. II. New York.

BOLLAERT, William.

1861. *The expedition of Pedro de Ursua and Lope de Aguirre in search of El Dorado and Omagua in 1560—61*. Hakluyt Society, London.

de BOOY, Theodor.

1913. *Lucayan artifacts from the Bahamas*. American Anthropologist, Vol. 15, No. 1.

1913. *Certain kitchen middens in Jamaica*. American Anthropologist, Vol. 15, No. 3.

1915. *Pottery from certain caves in eastern Santo Domingo, West Indies*. American Anthropologist, Vol. 17, No. 1.

1916. *Certain archaeological notes on the Island of Margarita, Venezuela*. Museum of American Indian, Heye Foundation, Contributions, Vol. II, No. 5.

1917. *Certain archaeological investigations in Trinidad, British West Indies*. Museum of the American Indian, Heye Foundation. Contributions, Vol. IV. No. 1.

BOVALLIUS, Carl.

1886. *Nicaraguan antiquities*. Stockholm.

BRETT, W. H.

1868. *Indian tribes of Guiana*. London.

CRAIG, Neville B.

1907. *Recollections of an ill-fated expedition to the headwaters of the Madeira River, Brazil*. Phila.

FARABEE, Wm. C.

1917. *A pioneer in Amazonia*. Bulletin of the Geographical Society of Phila., Vol. 15.

1918. *Central Arawaks*. University Museum Press. Phila.

1924. *Central Caribs*. University Museum Press. Phila.

FEWKES, J. Walter.

1903. *The aborigines of Porto Rico and neighboring islands*. 25th Annual Report of the Bureau of American Ethnology, Wash.

1909. *An Antillean statuette with notes on West Indian religious beliefs*. American Anthropologist, Vol. II.

1912. *Prehistoric culture areas in the West Indies*. 34th Annual Report of the Bureau of American Ethnology. Wash.

1914. *Prehistoric objects from a shell-heap at Erin Bay, Trinidad*. American Anthropologist, Vol. 16, No. 2.

1914. *Relations of aboriginal culture and environment in the Lesser Antilles*. Bulletin of the American Geographical Society, Vol. XLVI, No. 9.

GOWER, Charlotte.

1927. *Northern and southern affiliations of Antillean culture*. Memoirs of the American Anthropological Association, Vol. 35.

HARRINGTON, M. R.

1921. *Cuba before Columbus*. Museum of the American Indian, Heye Found., New York.

HARTMAN, C. V.

1901. *Archaeological researches in Costa Rica*. Stockholm.

HARTT, C. F.

1874. *Preliminary report of the Morgan Expedition 1870—71*. Report of the reconnaissance of the Lower Tapajos. Bulletin of Cornell University, Vol. 1, No. 1.

HATT, Gudmund.

1924. *Archaeology of the Virgin Islands*. XXI Congress International des Americanistes, Session de la Haye.

HEYER, George G., HODGE, F. W.; PEPPER, George H.

1918. *The Nacoochee Mound in Georgia*. Museum of the American Indian, Heye Foundation. New York.

HOLMES, Wm. H.

1884. *Ancient art of the Province of Chiriqui, Colombia*. 6th Annual Report of the Bureau of American Ethnology, Wash.

1895. *Archaeological studies among the ancient cities of Mexico. Pt. I. Monuments of Yucatan*. Field Columbian Museum. Publication No. 8.

1898. *Aboriginal pottery of the Eastern United States*. 20th Annual Report of the Bureau of American Ethnology.

de HOSTOS, Adolfo.

1924. *Notes on West Indian hydrography and its relation to prehistoric migrations*. Annaes do XX Congresso Internacional de Americanistas, Rio de Janeiro.

Im THURN, Everard.

1880. *A journey in the interior of British Guiana*. Proceedings of the Royal Geographical Society. London.
1884. *Notes on West Indian stone implements and other Indian relics*. Reprinted from «Timerhi», Demerara.

JONES, Joseph.

1876. *Aboriginal remains of Tennessee*. Wash.

de JOSSELIN de JONG, J. P. B.

1918. *The praecolumbian and early postcolumbian aboriginal population of Aruba, Curacao, and Bonaire*. Internationales Archiv für Ethnographie, Bd. 24. Leiden.
1918. *The praecolumbian and early postcolumbian aboriginal population of Aruba, Curacao, and Bonaire. The archaeological objects (continued)*. Preliminary comparative notes. Internationales Archiv für Ethnographie, Bd. 25.

JOYCE, Thomas A.

1916. *Central American and West Indian archaeology*. London.

KRIEGER, Herbert W.

1931. *Aboriginal pottery of the Dominican Republic*. United States National Museum. Wash.
1935. Letter.

La CONDAMINE, M. D.

1813. *Abridged narrative of travels through the interior of South America from the shores of the Pacific Ocean to the coasts of Brazil and Guyana, descending the River Amazonas*. In Pinkerton's General Collection of the Best and Most Interesting Travels in all Parts of the World. Longmans, Nees, Orme, Brown.

LEHMANN, Walter.

1924. *The art of old Peru*. New York.

LINNÉ, Sigvald.

1925. *The technique of South American ceramics*. Göteborg.
1926. *Archäologische Sammlungen des Gotenburger Museums vom Amazonas*. Atti de XXII Congresso Internazionale degli Americanisti, Vol. 1. Roma.
1928. *Les recherches archéologiques de Nimuendajū au Brésil*. Journal de la Société des Americanistes de Paris. Nouvelle Série, Tome XX.

1929. *Darien in the past*. Göteborg.
1937. *Notes on the archaeology of Venezuela*. *Ethnos*. No. 1.
- LINTON, Ralph.
1924. *Use of tobacco among North American Indians*. Field Museum of Natural History. Chicago. Anthropology Leaflet 15.
- LOTHROP, Samuel K.
1926. *Pottery of Costa Rica and Nicaragua*. 2 vols. Museum of the American Indian, Heye Foundation, New York.
- LOVÉN, Sven.
1935. *Origins of the Tainan culture, West Indies*. Göteborg.
- MacCURDY, George C.
1911. *A study in Chiriquian antiquities*. Yale University Press, New Haven.
1913. *Note on the archaeology of Chiriqui*. *American Anthropologist*, Vol. 15, No. 4.
- MARCANO, G.
1889. *Ethnographie précolombienne du Venezuela*. Librairie H. Le Soudier.
- MARKHAM, Clements R.
1859. *Expeditions into the Valley of the Amazons, 1539, 1540, 1639*. Hakluyt Society, London.
- MASON, J. Alden.
1924. *Use of tobacco in Mexico and South America*. Field Museum of Natural History, Chicago. Anthropology Leaflet 16.
1935. *New pottery types from Santarem, Brazil*. Manuscript.
1937. *Late archaeological sites in Durango, Mexico*. Twenty-fifth Anniversary Studies, Philadelphia Anthropological Society. University of Pennsylvania Press.
- MEDINA, José Toribio.
1934. *Discovery of the Amazon*. American Geographical Society, Special Publication, No. 17.
- MÉTRAUX, Alfred.
1928. *La civilisation matérielle des tribus Tupi-Guarani*. Paris.
1928. *La religion des Tupinamba*. Paris.
1930. *Contribution a l'étude de l'archéologie du cours supérieur et moyen de l'Amazonie*. De la Revista del Museo de La Plata, Tomo XXXII.
1930. *Études sur la civilisation des Indiens Chiriguano*. Revista del Instituto de Etnología de la Universidad Nacional de Tucuman. Tomo I. Tucuman.

1932. *El estado actual de nuestros conocimientos sobre la extension primitiva de la influencia Guarani y Arawak en el continente americano.* XXV Congreso Internacional de Americanistas, La Plata.

MOORE, Clarence B.

1894. *Certain sand mounds of St. Johns River, Florida, Pts. I and II.* Journal of the Academy of Natural Sciences of Philadelphia, Phila. Vol. X.
1895. *Certain sand mounds of Duval County, Florida; Two mounds on Murphy Island, Florida; Certain sand mounds of the Ocklawaha River, Florida.* Jour. Acad. Nat. Sci. Phila., Vol. X.
1897. *Certain aboriginal mounds of the Georgia Coast.* Jour. Acad. Nat. Sci. Phila., Vol. XI.
1898. *Certain aboriginal mounds of the coast of South Carolina; Certain aboriginal mounds of the Savannah River; Certain aboriginal mounds of the Altamaha River; Recent acquisitions; A cache of pendent ornaments.* Jour. Acad. Nat. Sci. Phila., Vol. XI.
1899. *Certain aboriginal remains of the Alabama River.* Jour. Acad. Nat. Sci. Phila., Vol. XI.
1900. *Certain antiquities of the Florida West-Coast.* Jour. Acad. Nat. Sci. Phila., Vol. XI.
1901. *Certain aboriginal remains of the Northwest Florida coast, Part I; Certain aboriginal remains of the Tombigbee River.* Jour. Acad. Nat. Sci. Phila., Vol. XI.
1902. *Certain aboriginal remains of the Northwest Florida coast, Part II.* Jour. Acad. Nat. Sci. Phila., Vol. XII.
1903. *Certain Aboriginal mounds of the Central Florida Westcoast; Certain aboriginal mounds of the Apalachicola River.* Jour. Acad. Nat. Sci. Phila., Vol. XII.
1905. *Certain aboriginal remains of the Black Warrior River (Moundville); Certain aboriginal remains of the Lower Tombigbee River; Certain aboriginal remains of the Mobile Bay and Mississippi Sound; Miscellaneous investigation in Florida.* Journ. Acad. Nat. Sci. Phila., Vol. XIII.
1907. *Moundville revisited; Crystal River revisited; Mounds of the Lower Chattahoochee and Lower Flint Rivers; Notes on the Ten Thousand Islands, Florida.* Jour. Acad. Nat. Sci. Phila., Vol. XIII.
1908. *Certain mounds of Arkansas and of Mississippi (including Doctor Hrdlicka's paper on the Crania).* Jour. Acad. Nat. Sci. Phila., Vol. XIII.

1909. *Antiquities of the Ouachita Valley*. Jour. Acad. Nat. Sci. Phila. Vol. XIV.
1910. *Antiquities of the St. Francis, White, and Black Rivers*. Jour. Acad. Nat. Sci. Phila., Vol. XIV.
1911. *Some aboriginal sites on Mississippi River*. Jour. Acad. Nat. Sci. Phila., Vol. XIV.
1912. *Some aboriginal sites on Red River*. Jour. Acad. Nat. Sci. Phila., Vol. XIV.
1915. *Aboriginal sites on the Tennessee River*. Jour. Acad. Nat. Sci., Phila. Vol. XVI.
1916. *Some aboriginal sites on Green River, Kentucky; Certain aboriginal sites on Lower Ohio River; Additional investigations on the Mississippi River*. Acad. Nat. Sci., Phila. Vol. XVI.
1918. *The northwestern Florida coast revisited*. Jour. Acad. Nat. Sci., Phila. Vol. XVI.
- MOOREHEAD, Warren K.
1932. *Etowah Papers. Exploration of Etowah Site in Georgia*. Phillips Academy, New Haven.
- MORDINI, Antonio.
1934. *Gaetano Osculati e l'archeologia del medio Rio delle Amazoni*. Archivio per l'Antropologia e la Etnologia, Vol. LXIV.
- MORRIS, Carl; Charlot, Jean; Morris, Ann Axtell.
1931. *The Temple of the Warriors at Chichen Itza, Yucatan*. Carnegie Institution of Washington.
- NIMUENDAJÚ, Curt.
1926. *Die Tapajó* (Manuscript).
1937. *Map of the Tapajó area*.
- NOMLAND, Gladys Ayer.
1933. *Archaeological site of Hato Viejo*. American Anthropologist, Vol. 35, No. 4.
1935. *New archaeological sites from the state of Falcon, Venezuela*. University of California Press.
- NORDENSKIÖLD, Erland.
1924. *Forschungen und Abenteuer in Südamerika*. Stuttgart.
1930. *L'archéologie du Bassin de l'Amazone*. Paris.
- OSGOOD, Cornelius.
1934. Letter.
- PALMATARY, Helen C.
1936. *Ceramic art of the Tapajó* (Manuscript).

RAINEY, Froelich G.

1935. *A new prehistoric culture in Puerto Rico*. Proceedings of the National Academy of Sciences, Vol. 21, No. 1.

REID, W. A.

1916. *Navigation on South American rivers*. Bulletin of the Pan American Union, July 1916.

REQUENA, Rafael.

1932. *Tipografia Americana*. Caracas.

RICE, Hamilton.

1918. *Notes on the Rio Negro (Amazonas)*. Geographical Journal, Vol. 52, No. 4.
1921. *The Rio Negro, Casiquiare, and Upper Orinoco*. Geographical Journal, Vol. 58., No. 3.

RODWAY, James.

1912. *Guiana, British, Dutch, French*. New York.

ROOP, Wendell P.

1935. *Watercraft in Amazonia*. Woodbury, New Jersey.

ROTH, Walter E.

1924. *An introductory study to the arts, crafts, and customs of the Guiana Indians*. 38th Annual Report of the Bureau of American Ethnology. Wash.

ROTH, Walter E., editor and translator.

1922. *Richard Schomburgk's travels in British Guiana, 1840—41*. Georgetown.

ROUSE, Irving.

1937. *New evidence pertaining to Puerto Rican prehistory*. Proceedings of the National Academy of Sciences. Vol. 23, No. 3.

SAVILLE, Marshall H.

1907. *Contributions to South American archaeology*. Antiquities of Manabi, Ecuador. Preliminary report.
1910. *Same*. Final report. New York.

SCHMIDT, Max.

1929. *Kunst und Kultur von Peru*. Berlin.

SCHOMBURGK, Robert, H., editor.

1848. *Discovery of the large, rich, and beautiful empire of Guiana, with a relation of the great and golden city of Manoa, performed in the year 1595 by Sir Walter Raleigh*. Hakluyt Society. London.

SERRANO, Antonio.

1938. *Ceramica de Santarem*. Revista Geographica Americana. Vol. IX, No 54. Buenos Aires.

SETZLER, F. M.

1938. Letter.

SHETRONE, Henry C.

1930. *The Mound-Builders*. New York.

SMITH, Herbert H.

1870. *Brazil, the Amazons, and the coast*. New York.

SPINDEN, Herbert.

1916. *New data on the archaeology of Venezuela*. Proceedings of the National Academy of Science, Vol. II.

1917. *Ancient civilizations of Mexico and Peru*. American Museum of Natural History. Handbook. No. 3.

SQUIER, E. G.

1853. *Travels in Central America, particularly in Nicaragua: with a description of its aboriginal monuments, scenery and people*. New York.

STURGIS, Russell.

1901. *A dictionary of architecture and building*. New York.

THOMAS, Cyrus.

1890. *Report on Mound explorations*. 12th Annual Report of the Bureau of American Ethnology. Wash.

THURSTON, Gates P.

1890. *Antiquities of Tennessee and the adjacent states*. Cincinnati.

UHLE, Max.

1925. *Der Mittelamerikanische Ursprung der Moundbuilder- und Pueblo-civilisationen*. 21st Congress of Americanists, Göteborg.

United States Hydrographic Charts: *South Atlantic*, No. 2600; *North Atlantic*, No. 1400.

VAILLANT, George C.

1930. *Excavations at Zacatenco*. Anthropological Papers of the American Museum of Natural History. Vol. XXXII Pt. I.

1931. *Excavations at Ticoman*. Anthropol. Papers of the Amer. Mus. of Nat. Hist. Vol. XXXII, Pt. II.

1932. *Some resemblances in the ceramics of Central and North America, Gila Pueblo, Globe, Arizona*.

1935. *Excavations at El Arbolillo*. Anthropol. Papers of the Amer. Mus. Nat. Hist. Vol. XXXV, Pt. II.

VAILLANT, Suzannah B. and George C.

1934. *Excavations at Gualupita*. Anthropol. Papers of the Amer. Mus. of Nat. Hist. Vol. XXV, Pt. I.

WASSÉN, Henry.

1934. *The Frog-Motive among the South American Indians*. Ornamental studies. Anthropos, May-Aug.

The frog in Indian mythology and imaginative world. Same. Sep-Dec.

1936. *An archaeological study in the western Colombian cordillera*. Göteborg, Etnologiska Studier, 2.

WHITBECK, R. H.

1926. *Economic geography of South America*. New York.

Die Babongo-Zwerge und ihr Pfeilgift

Von

C. G. Santesson

(Aus der pharmakologischen Abteilung des Karolinischen Medico-chirurgischen Instituts zu Stockholm).

Im September 1938 erhielt ich von dem Intendanten Dr. W. KAUDERN am Ethnographischen Museum der Stadt Gotenburg eine kleine Probe von Pfeilgift aus dem französischen Kongo. Das Gift, an Pfeilspitzen haftend, war nebst Bogen und Köcher von dem schwedischen Missionar, Pastor EFRAIM ANDERSSON, an das Museum eingesandt worden. Die erwähnten Gegenstände rührten von Zwergen her, die zu dem grossen Bakongo-Volke gehören, das nach LEWIN¹ in verschiedenen Gruppen am unteren Kongo, dem Fluss entlang, bis in der Gegend von Stanley Pool vorkommt. Am Köcher war eine Etikette angebracht mit folgender Angabe: »Der Tubus (Köcher) enthält vergiftete Pfeile, die von den Bakuta bei Affenjagd benutzt werden. Der Bogen gehört dazu. Das Gift soll einen Menschen töten können. Kommt aus der Gegend von Leboulou durch den Häuptling Kele als Gabe an Lazare Makaya. Wird zur Heimsendung an Efraim Andersson aufbewahrt. Loubetsi, den 27. Sept. 1932. B. A.» —

Um über die lokalen Ursprungsverhältnisse zu orientieren, sei auf die beigelegte Kartenskizze (Fig. 1) verwiesen, die von Pastor EFRAIM ANDERSSON gezeichnet worden ist. Die Babongo-Zwerge, mit welchen A. in Verbindung trat, befanden sich in den Distrikten (Subdivisions) Sibiti und

¹ LEWIN: Die Pfeilgifte, Leipzig 1923, S. 262.

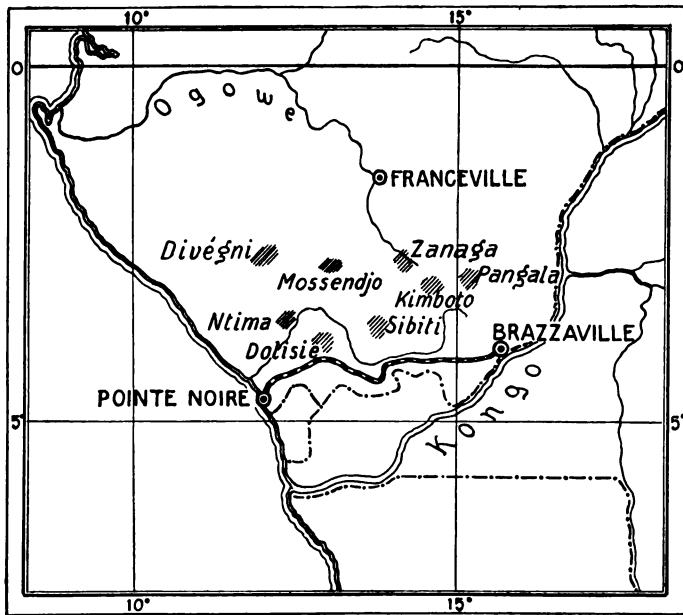


Fig. 1. Kartenskizze über die Siedelungen der Babongo-Zwerge im französischen Kongo-Gebiete. Die gestrichelten Flächen geben ungefähr die Bezirke an, wo verschiedene Gruppen des Zwergenvolkes sich aufhalten. Massstab etwa 1: 6.000.000. — (Die zur Reproduktion benutzten Zeichnungen sind mir von Dr. Kaudern gütigst zur Verfügung gestellt worden.)

Zanaga sowie Mossendjo und Ntima, von wo die vergifteten Pfeile im Köcher durch Vermittlung des Missionars BERNER ALIN von A. erworben wurden. Babongo leben auch im Distrikt Dolisie, wo sie jedoch mehr degeneriert und gemischt sind. Die in ihrer alten »Kultur« am besten erhaltenen Zwerge sollen im Distrikt Divégni wohnen — eine Gegend, die A. leider nicht besuchen konnte. Zerstreute Gruppen von Babongo finden sich übrigens auch anderswo, z. B. in den Distrikten Kimboto und Pangala; diese sind aber von geringerer Bedeutung. Es ist auch möglich, sogar wahrscheinlich, dass Babongo noch tiefer im Lande, dem Kongo entlang, bis zum Nebenfluss Sanga vorkommen, wo

die Babinga-Pygmäen wohnen. Babongo werden zuweilen Babinga genannt; es liegt daher Anlass vor, anzunehmen, dass ein Zusammenhang zwischen den beiden Gruppen existiert hat und vielleicht noch existiert.

Die Zwergvölker der Gegend zwischen Kongo und Ogowe (siehe Fig. 1) sind früher von dem Forschungsreisenden DU CHAILLU¹ (1863 u. 1865) beschrieben worden. Er nennt sie »Obongo« (»Bongo« oder »Babongo«) und gibt an, dass sie nur 1,2 m. hoch sind; sie haben schmutzig gelbliche Hautfarbe, niedrige, schmale Stirn, vorstehende Backenknochen, platte Nase, dicke Lippen und »Haare wie die Buschmänner« — also gekräuseltes Haar am Kopf. SCHEBESTA² erwähnt, dass DAPPERS von den *Bakkebakke* oder *Mimos*, von Zwergen an der Loangoküste spricht, die mit den *Bekwi* oder *Akoa* in Gabun (Westafrika) identisch sein sollen. Inwieweit alle diese mit verschiedenen Namen bezeichneten Gruppen oder Stämme miteinander übereinstimmen, lässt sich nicht sicher entscheiden. Die von DU CHAILLU angegebenen Namen finden sich in ANDERSSON'S Bericht wieder. Was dagegen die Körperlänge der Zwerge in diesem Gebiete betrifft, so sind später die kleinen Masse DU CHAILLUS nicht wiedergefunden worden. BASTIAN und FALKENSTEIN geben 1,5 m an, und DE BRAZZA³ schreibt, dass die Männer 1,5 bis 1,52, die Frauen 1,42 bis 1,43 m hoch sind — Zahlen, die A.'s unten zu erwähnenden näher kommen.

A. hat die Körperlänge einer Anzahl von Männern und Frauen aus die verschiedenen Dörfern (Ikwele bei Mapati, Loyo und Iyogho) gemessen. Die mittlere Länge der 31 Männer war 157,4 cm mit den Grenzwerten 144,5 und 170

¹ PAUL, DU CHAILLU: »A journey to Ashango-Land«. London 1867, S. 311 ff.

² PAUL, SCHEBESTA: »Bambuti, die Zwerge von Kongo«. Leipzig 1932, S. 17—18.

³ Zitiert nach G. v. DÜBEN: »Forskningar i Centralafrika« (In der Serie: Ur vår tids forskning, nr. 23) Stockholm 1878, S. 96.

cm, die der Frauen (28 an der Zahl) 145,6 cm mit den Grenzwerten 133 und 154,5 cm. Die mittlere Körperlänge ist also hier noch etwas grösser als die von DE BRAZZA aus dem Jahre 1877 angegebene. Die Hautfarbe wechselt stark — zwischen gelblich und nahezu schwarz wie die der Neger. Nicht selten sind die längeren Individuen auch dunkler, auf Beimischung von Negerblut hindeutend.

Die Gesichtszüge wechseln auch sehr. Ein negerähnliches Aussehen mit breiter Nase, eingedrückter Nasenwurzel und vorstehenden Backenknochen kommt oft vor, ist aber lange nicht die Regel. Nicht selten ist die Nase schmal und das Profil »gerade«. Prognathie ist allgemein, doch nur an gewissen Individuen mehr ausgesprochen. Die Kopfhaare sind immer schwarz. Nur an gewissen Individuen, besonders an Kranken, sind sie »schmutzig rötlich«; und A. vermutet, dass diese Erscheinung pathologisch sein könnte. Bei einer Frau (133 cm lang) war die Hautfarbe dunkel mit helleren Flecken, die Nase breit, die Beine kurz. Sie zeigte Ansatz zu Steatopygie (sehr stark hervortretendem Gesäss). — Die körperlichen Charaktere zeigten also grosse Variationen, die wohl auf Beimischungen (vielleicht auch von Weissen?), zum Teil auch auf Degeneration hindeuten. Wenn man A.'s Angaben mit DU CHAILL.U's vergleicht, scheint hier ein fortlaufender Prozess vorzuliegen. Man muss aber auch berücksichtigen, dass die Ausführung der Messungen verschieden sein könnte, sowie dass man nicht sicher weiss, dass die gemessenen Individuen zu demselben Stamm gehörten.

Über die Lebensverhältnisse der Babongo hat A. mir gütigst interessante Mitteilungen geliefert. Sie sind während der Regenperioden sesshaft — oft mehrere Jahre an demselben Ort. Während der Trockenperioden (Juni bis September) ziehen sie umher, wenn sie auch nicht im eigentlichen Sinne des Wortes nomadisieren. Jedenfalls verlassen sie alle das Dorf und treiben sich im Walde auf der Jagd umher. Ihrem Lager, das sie wahrscheinlich oft wechseln, widmen sie keine grosse Sorgfalt. Der einzige Schutz, den

sie sich dabei bereiten, ist eine Art von einfachem Windschirm aus Sträuchern und Schlingpflanzen, die sie zusammenflechten. Fürchten sie Leoparden, so stellen sie abends Jagdnetze rund um das Lager auf. Soviel A. weiss, bleiben sie auch während dieser Zeit des Umherschweifens innerhalb desselben Gebiets.

Die Babongo sind von den Negerstämmen des Bezirkes — Bayaka, Bateke, Bakuni und Banzabi, auch wahrscheinlich Balsangi — mehr oder weniger abhängig. Inwieweit sie »Sklaven« sind, ist schwierig zu entscheiden. Sie nennen sich selbst »Maninga«, d. h. Sklaven, der Neger. Wenn man aber mit dem Begriff der Sklaverei den Zwang verbindet, dass sie immer im Dorfe des Herrn wohnen und für ihn arbeiten müssen — was wohl für die Sklaverei der primitiven Völker nicht ohne weiteres stimmt — könnte man vielleicht sagen, dass die Babongo »Leibeigene« der Neger sind. Sie geben selbst an, dass sie den Bateke oder Bayaka Steuern zahlen. Da sie aber von den Negern Hilfe in allerlei Formen bekommen, ist es doch vielleicht nicht richtig, von Zahlung einer Steuer zu reden. Die Abhängigkeit geht jedoch z. B. daraus hervor, dass viele Babongo bei Eheschliessung den grösseren Teil der Mitgift ihrem Batekehäuptling zahlen müssen; nur ein geringer Anteil derselben fällt der Familie der Braut zu. Andere — wie die Babongo in dem Dorfe Banzieye — sind angeblich nicht gezwungen, einen Teil der Mitgift ihrem Häuptling zu senden. Freiwillig geben sie ihm aber oft einen Teil davon.

Ein Austausch findet zwischen den Negern und den Babongo statt. Diese liefern Fleisch (Jagdbeute) und erhalten Maniok, Bananen und andere vegetabilische Produkte. In gewissen Dörfern müssen die Babongoweiber auf den Feldern der Bayaka oder der Bateke arbeiten. Man kann jedoch nicht behaupten, dass die Babongo bei den Negern »parasitieren«. Jene müssen in vollem Masse ihren »Verpflichtungen nachkommen«, und die Neger ihrerseits pflegen die Babongo recht gehörig »auszusaugen«. — Dass

es sich jedoch mitunter um eine Art von Sklaverei handeln kann, geht daraus hervor, dass Bateke und auch andere Negerstämme die Babongo verkaufen; wenigstens haben sie es früher getan; die Bateke verkaufen sie an Bayaka und diese an Bakuni usw. Der Preis wurde in Stoff oder in Salz geliefert. Drei Körbe Salz war angeblich der Preis eines »Mubongos».

Man hat mehrmals A. berichtet, *wie* die Babongo zur Sklaverei gebracht wurden. In einem Falle, der besonders glaublich erscheint, bauten die Vorfahren der Bateke und Babongo ihre Dörfer nahe aneinander — weil diese durch Tauschhandel sich Lebensmittel verschaffen wollten. Dabei ereignete sich aber — so berichtet ein Batekehäuptling — dass die Babongo von den Feldern der Neger Essen stahlen. Diese packten dabei die Zwerge und machten sie zu Sklaven.

Die *Hütten* der Babongo waren früher rund wie Bienenkörbe. Sie bestanden aus einem Gerüst von Holzstangen, die mit grossen herzförmigen Blättern bedeckt waren. Diese runde Hüllen werden aber immer mehr durch viereckige Häuser mit Satteldach ersetzt, wie sie bei den Negern in dieser Gegend gewöhnlich sind. Die Veränderung geht rasch vor sich. Zur Zeit von A.'s erstem Besuch bei den Babongo — es war in dem Dorfe Banzieye nahe der Missionsstation Indo im Jahre 1931 — gab es dort ungefähr in gleicher Anzahl runde und rechteckige Häuser. Im Jahre 1934 sah man keine einzige runde Hütte mehr. Ebenso verhält es sich in anderen Dörfern. Doch gibt es tief im Walde noch kleine Dörfer, die ausschliesslich aus Rundhütten bestehen — so im Sommer 1935 bei A.'s letztem Besuch. Viele Hütten stellen eine Zwischenstufe zwischen einfachem Windschirm und Rundhütte dar; sie sind halbkreisförmig, die eine Seite offen.

Von *Haustieren* kommen — ausser Hunden — soweit bekannt, nur Hühner vor. Diese gehören meistens, und jedenfalls ursprünglich, den Negern, die sie den Babongo zum »Weiden» gegeben haben — meistens damit sie sicher

sind, wenn Soldaten oder Polizeibeamte nach ihrem Dorf kommen, um unbezahlte Steuern einzutreiben. Da indessen ein Teil der Kùchlein (2 von 5) den Babongo zukommen, werden auch diese allmählich Besitzer von Hühnern.

In Bezug auf *Heimindustrie* der Babongo sind die Verhältnisse nicht überall gleich. Die Jagdnetze machen sie im allgemeinen selbst. In gewissen Dörfern kauft man jedoch seine Netze von Negeren. Bogen und Pfeile, ihre ursprünglichen Jagdwaffen, sind nunmehr so gut wie vollständig aus dem Gebrauch gekommen. Wie die Neger benutzen sie jetzt Jagdnetze, die über recht weite Strecken angebracht werden. Das Wild wird unter Lärmen und Schreien gegen die Netze getrieben und, wenn es darin steckengeblieben ist, mit Messern getötet. Früher wurden dazu spitzige Holzstäbe (»Mampingu«) benutzt. Bogen und Pfeile sind nunmehr kaum aufzutreiben.

Die Babongomänner tragen oft eine Art kleiner Beutel aus Baumvollenfäden, um darin Feuerzeug u. dgl. aufzubewahren. Wahrscheinlich handelt es sich auch in diesem Falle nicht um eine für die Babongo ursprüngliche Leistung. Stoff aus Fasern der Raphiapalme verstehen die Babongo meistens nicht zu weben. A. hat nur 3 Babongomänner gesehen, die dessen fähig waren, und sie hatten diese Kunst neulich von den Bateke gelernt. Die Babongo erwerben von den Negeren abgetragene Tuchstücke durch Austausch gegen Fleisch, oder sie heben Fetzen auf, die diese weggeworfen haben. — Körbe fabrizieren wohl die meisten Babongo selbst — eine Aufgabe der Weiber. In manchen Dörfern können sie jedoch nicht Körbe flechten, sondern verschaffen sich solche durch Tauschhandel mit den Negeren. Matten können sie auch nicht flechten und scheinen solche sehr wenig, wenn überhaupt, zu benutzen. — Von Holzarbeiten stellen die Babongo eine Art einfacher Mörser dar; andere kaufen solche für Fleisch. Einige verfertigen selbst ihre Hundeschellen (aus Holz). In einem Dorf besaß der Häuptling einen recht guten Stock — dieser war aber von

Negern gekauft. Etwa vorhandene Holzlöffel waren ebenfalls durch Kauf erworben. — Tontöpfe werden sehr wenig benutzt; wenn sie überhaupt vorkommen, sind sie von irgendeinem Nachbarstamm (Negern) gekauft worden. Alle Eisengeräte, besonders Jagdmesser, auch Rasiermesser, werden von den Negern her erworben; sie sind fast immer alt und abgenutzt. Ehe sie Eisenmesser hatten, benutzten sie, wie oben erwähnt, scharf zugespitzte Holzmesser nicht nur für die Jagd, sondern auch um im Walde essbare Wurzeln u. dgl. auszugraben.

Jagdbeute und Waldprodukte anderer Art stellen die Hauptnahrung der Babongo dar. Ein Teil der Jagdbeute wird jedoch zum Tauschhandel benutzt, um vegetabilische Nahrung zu erwerben. Die Weiber fischen in den Bächen, wobei sie einfache Körbe oder Reusen anwenden. Diese werden — wenigstens nunmehr — von den Babongoweibern gefertigt.

Soweit die interessanten Mitteilungen von Pastor ANDERSSON, die eine sehr gute Vorstellung von den Babongozwergen und ihrer jetzigen Lage geben.

Fig. 2. zeigt die jetzt ausser Gebrauch gekommenen Jagdwaffen der Babongo, von denen Dr. KAUDERN mir gütigst eine Beschreibung gesandt hat. Der Bogen ist etwa 53 cm lang, aus braunem Holz (phanerogamen Ursprungs); der Strang scheint aus einem rotangähnlichen Material zu bestehen. Der Pfeil, sehr schmal und leicht, ist 32 cm lang, wahrscheinlich aus dem Holz irgendeiner Palme. Von der scharfen Spitze aus gerechnet, sind etwa 5 cm mit dunkelbraunem Gift beschmiert. Einige Zentimeter vom Hinterende des Pfeiles ist eine Spalte im Holz angebracht, die nicht das freie Ende erreicht, und darin ist ein Stück eines steifen Blattes als Steuer eingeschoben. Wenn man dieses Steuerblatt gegen einen rings um das Hinterende des Pfeiles angebrachten Wattebausch oder einen Zapfen elastischen Markgewebes eines Baumes austauscht, so hat man einen Blasrohrpfeil. — Die Anwendung eines steifen Blattes als

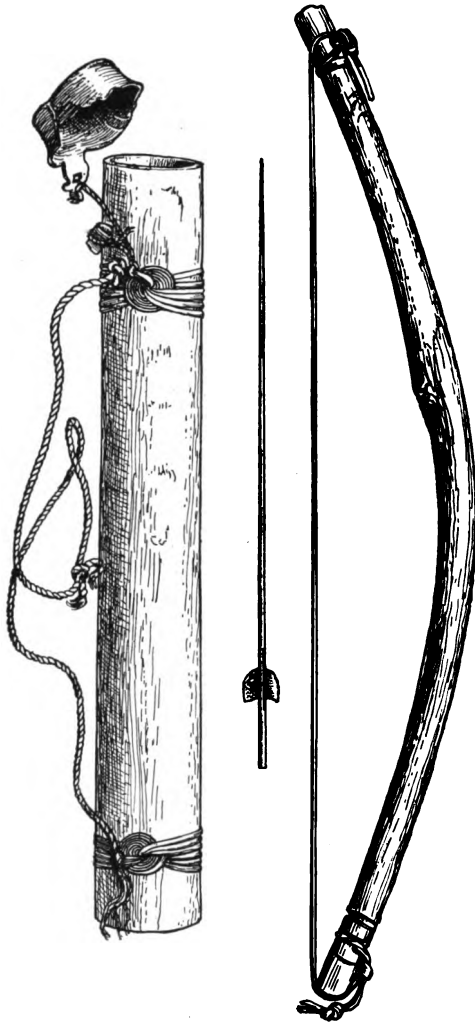


Fig. 2. Bogen, Pfeil und Köcher der Babongo — etwa $\frac{1}{4}$ der natürlichen Grösse.

Steuer an Giftpfeilen ist sicher weit verbreitet gewesen. So habe ich früher solche Pfeile, von dem Baketestamm am Lulua-Fluss im belgischen Kongo herrührend, beschrieben,¹ die mit Lulengo-Gift (ebenfalls von einer *Strophanthus*-art) bestrichen waren. Die Bakete-Pfeile waren aber 75 cm lang und die vergiftete Pfeilspitze mit kleinen, in dem Pfeilholz eingeschnittenen Widerhaken versehen. Nach WEULE² kamen sehr ähnliche Giftpfeile auch bei gewissen in den Wäldern Zentralafrikas herumstreifenden Zwergvölkern vor.

Der Köcher (Fig. 2) ist 42 cm lang und misst im Querschnitt etwa 5 cm. Er besteht aus einem ausgehöhlten Zweig eines phanerogamen Baumes (nicht aus Bambus). Der Boden ist eine Holzplatte, die mittels zwei gekreuzter Holzstäbchen festgehalten ist. Der Deckel besteht aus Tierhaut. Die Tragschnur ist aus demselben Material wie der Bogenstrang hergestellt.

Wie oben erwähnt, sind diese Waffen sowie auch das Gift als kostbare Überreste einer schwindenden Epoche zu betrachten, da sie nunmehr nicht weiter benutzt werden.

Über das Pfeilgift der Zwerge aus diesem Lande kommt bei LEWIN³ eine Notiz vor, die hier von Interesse ist. Er gibt an, dass in der Gegend von Franceville (vgl. Fig. 1 oben) und überhaupt im Ogowe-Gebiet das Pfeilgift meistens von *Strophanthus gratus* Franch. herrührt. Die Samen dieser Pflanze werden zwischen zwei glatten Steinen zu einer Paste zerquetscht. Die ölige Masse (öliges Fett stammt aus den Samen) wird mit Wasser, Speichel, Fett oder Saft gewisser Blätter gemischt und Schleim irgendeiner Liliacee

¹ C. G. SANTESSON: Skandinav. Arch. f. Physiol. 1918, Bd. 35, S. 136 ff., Fig. 6. — Vgl. auch ebenda, 1934, Bd. 70, S. 102—111, »Pfeilgift eines Zwergvolkes in Zentralafrika.«

² KARL WEULE: »Die Urgesellschaft und ihre Lebensfürsorge«. Schrift, herausgegeben von Kosmos, Gesellsch. d. Naturfreunde. Stuttgart 1912, S. 25 ff. Fig. 6 B.

³ LEWIN, a. a. o., S. 252.

hinzugefügt, damit das Gift an den Pfeilspitzen leicht angeklebt werden könne. LEWIN erzählt auch, dass man eine weisse Kröte über Feuer trocknet, pulverisiert und dem Gifte zusetzt. Die Giftmasse wird geknetet, nimmt in der Luft rote Farbe an und wird mit Hilfe gewisser Kunstgriffe an die Pfeilspitzen angebracht.

Die ganze Giftmenge, die mir zur Verfügung stand, war nur 5,47 Zentigramm und bestand aus kleinen, dunkelbraunen Körnchen mit stark bitterem Geschmack. Die Lösung des Giftes in Wasser gab nicht Fehlings Zuckerreaktion. *Nach Kochen einer anderen kleinen Probe mit Salzsäure trat aber stark positive Zuckerreaktion hervor. Wie erwartet, enthielt also das Gift irgendein Glukosid.*

Bei Lösung einer Quantität des Giftes in physiologischer Kochsalzlösung (sog. Ringerlösung) blieb recht viel ungelöst. Durch Verdampfung einer genau abgemessenen Menge der Lösung und Wägung des Trockenrückstandes mit Abrechnung der Ringersalze wurde bestimmt, dass die Flüssigkeit 0,04 % feste Bestandteile aus dem Gifte enthielt.

Tierversuche:

Vers. 1, d. 11. Okt. 1938. Rana temporaria, 49,5 g, erhielt um 11^h 30' vm. 1 ccm der Lösung subkutan eingespritzt; zeigt eine Viertelstunde später Unruhe und Andeutung zu Atmungspausen. Da weitere Symptome nicht rasch eintraten, wurde 11^h 54' noch 1 ccm der Lösung ingiziert. Die Atmungspausen stellten sich öfters ein. — 12^h 7' nm. sehr schlaff. Herzbewegungen können nicht mehr beobachtet werden. Der Frosch wurde dekapitiert, wobei keine Blutung entstand. Bei Zerstörung des Rückenmarks nur schwache Zuckungen. Das Herz stand fest kontrahiert (in Systole) still. — Der Frosch hatte in 2 Portionen zusammen 0,8 mg Giftsubstanz — etwa 16 mg pro Kilo — erhalten und ist etwa 30 Min. nach der ersten Injektion gestorben.

Vers. 2. 12. Okt. R. temporaria, 46,4 g, erhielt um 3^h 6' nm. 1 ccm der Lösung subkutan und 3^h 29' noch 1 ccm. Der Verlauf demjenigen des Vers. 1 sehr ähnlich. Bald nach der zweiten Injektion lange Atmungspausen; »gähnt« dann und wann (Nausea). Die Atmung hört bald auf. Wird um 3^h 40' nm. getötet und zeigt die gewöhnlichen Erscheinungen, u. a. das Herz stillstehend in Systole.

Der Frosch hatte auch in diesem Falle 0,8 mg Gift — etwa 17,2 mg pro Kilo — erhalten und ist ebenfalls nach etwa 30 min. unter typischen Symptomen eines Herzgiftes der Digitalis-Strophanthus-Reihe gestorben.

Die Giftmenge war zu gering, um die Mindestletaldosis zu bestimmen. Wahrscheinlich wäre der Tod auch ohne die zweite Einspritzung allmählich eingetreten. Eine sehr starke Wirkung hat das Gift jedoch nicht entfaltet.

Wenn man alle oben erwähnten Umstände berücksichtigt, ist wohl ohne Zweifel *das Pfeilgift der Babongozwerge als ein Strophanthusgift zu betrachten — wahrscheinlich aus Samen des Strophanthus gratus Franch. hergestellt.* —

Ich benutze die Gelegenheit, den Herren Intendanten Dr. WALTER KAUDERN und Missionar Pastor EFRAIM ANDERSON für das interessante Material sowie für alle wertvollen Auskünfte meinen verbindlichsten Dank auszusprechen.

C. G. Santesson dead.

Immediately before this issue of Ethnological Studies was to have been released from the printers', news was received of the death of former Professor of Pharmacology at the Karoline Institute, Med. Dr. C. G. Santesson, of Stockholm, who passed away suddenly on June 26, 1939, at the age of nearly 77 years.

Professor Santesson had for many years done research in the field of exotic poisons used by primitive peoples, occupying himself particularly with arrow poisons, their origin and their effect upon various organs. In this connection he had from time to time carried out pieces of research on the poisons belonging to Göteborg's Ethnographical Museum.

Some of this research Santesson carried on as early as during Professor Baron Erland Nordenskiöld's time as head of the Museum and in later years he continued with the keenest interest his investigations of the Museum's poison material. It was always a genuine pleasure to work with Professor Santesson and to let this publication stand at his service. During recent years he has published a number of research works in this periodical, for which the Gothenburg Ethnographical Museum is most grateful.

Santesson has published the following works treating poison material from Göteborg's Ethnographical Museum:

1. *Pilgiftsstudier, En kurareförgiftad pil från västra Brasilien.* (Svenska Läkarsällskapets Handlingar, band 43:3, pp. 888—906), Stockholm 1917.
2. *Pfeilgiftsstudien. Ein mit Kurare vergifteter Pfeil aus dem westlichen Brasilien.* (Skandinavisches Archiv f. Physiologie, XXXVII, pp. 143—179, Leipzig 1919.
3. with GOTTFRID THORELL: *Ein eigentümliches »Pfeilgift« aus Goajiro (Kolumbien, Südamerika).* (Ymer 1924, pp. 192—199), Stockholm. [Also printed in Skandinavisches Archiv f. Physiologie, L, pp. 197—204, Berlin and Leipzig 1927, and in Spanish, *El „veneno“ de las flechas de los goajiros*, in »La Medicina germano-hispano-americana, año 1, núm. 11, pp. 969—975, julio de 1924.]
4. *Eine Probe von Topf/kurare.* (Skand. Arch. f. Physiol. LII, pp. 209—221), Berlin and Leipzig 1927.

5. *Ein Pfeilgift mit Herzwirkung aus Südamerika (Columbia)*. (Acta Medica Scandinavica, LXVIII, pp. 287—304), Stockholm 1928.
6. *Ein Pfeilgift mit Herzwirkung aus der Neuen Welt*. (Skand. Arch. f. Physiol. LV, pp. 230—257). Berlin and Leipzig 1929.
7. *An Arrow Poison with Cardiac Effect from the New World*. (Comparative Ethnographical Studies ed. by Erland Nordenskiöld, Vol. 9, pp. 155—187). Göteborg 1931.
8. *Ein starkes Topf-Kurare von den Tucuna-(Ticuna-)Indianern des oberen Amazonas*. (Acta Medica Scandinavica, LXXV, pp. 1—9). Stockholm 1931.
9. *Bemerkung über südamerikanisches Pfeilgift. Antwort an Herrn Professor Rafael Karsten*. (Soc. scient. Fennica. Commentat. Humanar. Litterar. VI. 5, 10 pp.) Helsingfors 1933.
10. *Pfeilgiftstudien. I. Pfeilgift eines Zwergvolkes in Zentralafrika. II. Pfeilgifte aus Celebes*. (Skand. Arch. f. Physiol. LXX, pp. 102—125). Berlin and Leipzig 1934.
11. *Pfeilgiftstudien. Eine Kurareprobe aus Ecuador*. (Skand. Arch. f. Physiol., LXVIII, pp. 202—214). Berlin and Leipzig 1934.
12. *A report in brief of an examination of Chocó Indian poisons and Pharmacological examination of the Cayapa poison*, pp. 105—108, in Henry Wassén: Notes on Southern Groups of Chocó Indians in Colombia. (Ethnological Studies 1). Göteborg 1935.
13. *Pfeilgifte aus Burma und Yunnan*. (Ethnological Studies 2, pp. 5—14) Göteborg 1936.
14. *Pfeil- und Fischgift aus Kolumbien und Ekuador*. (Ethnological Studies 2, pp. 15—29). Göteborg 1936.
15. with HENRY WASSÉN: *Some Observations on South American Arrow Poisons and Narcotics. A rejoinder to Professor R. Karsten*. (Ethnological Studies 3, pp. 330—358). Göteborg 1936.
16. *Notiz über Piule, eine mexikanische Rauschdroge*. (Ethn. Studies 4, pp. 1—11). Göteborg 1937.
17. *Noch eine mexikanische »Piule«-Droge, Semina Rynchosiae Phaseoloidis DC*. (Ethn. Studies 6, pp. 179—183). Göteborg 1938.
18. *Kurze Notiz über den Pakurú-Baum in Columbia (Süd-Amerika)*. (Arkiv för botanik, 29 B: 2, pp. 1—3). Stockholm 1938.
19. *Kurarewirkende Substanz in den Samen einer Leguminose. Vorläufige Mitteilung*. (Skand. Arch. f. Physiol. LXXX, pp. 361—368). Berlin 1938.
20. *Die Babongo-Zwerge und ihr Pfeilgift*. (Ethnological Studies 8, pp. 137—148). Göteborg 1939.

Göteborg, June 28, 1939.

Walter Kaudern

Etnologiska Studier

Edited and published by Dr. Walter Kaudern.

Published twice a year. Annual subscription Sw. Kr. 15:— (\$ 3.80, 15 s 6 d). Orders to Dr. Walter Kaudern, Gothenburg Ethnographical Museum, Göteborg (Sweden), or through your book dealer. Separate reprints not for sale.

Ethnological Studies 1, Göteborg 1935. Contents:

- Walter Kaudern*, Notes on plaited anklets in Central Celebes (with 14 figures), pp. 5—25.
Stig Rydén, Skalpierung bei den Tobaindianern (with 2 figures), pp. 26—34.
Henry Wassén, Notes on Southern Groups of Chocó Indians in Colombia (with 40 figures), pp. 35—182.

Ethnological Studies 2, Göteborg 1936. Contents:

- C. G. Santesson*, Pfeilgifte aus Burma und Yünnan (with 3 figures), pp. 5—14.
" Pfeil- und Fischgift aus Kolumbien und Ekuador (with 1 figure), pp. 15—29.
Henry Wassén, An Archaeological Study in the Western Colombian Cordillera (with 26 figures), pp. 30—67.
Rafael Karsten, Arrow-poisons and narcotics in Western Amazonas, pp. 68—77.
Walter Kaudern, Notes on plaited anklets in Central Celebes 2 (with 2 figures), pp. 78—83.

Ethnological Studies 3, Göteborg 1936. Contents:

- Stig Rydén*, Archaeological Researches in the Department of La Candelaria (Prov. Salta, Argentina), pp. 5—329 (with 150 figures).
C. G. Santesson and *Henry Wassén*, Some Observations on South American Arrow-poisons and Narcotics, pp. 330—358.

Ethnological Studies 4, Göteborg 1937. Contents:

- C. G. Santesson*, Notiz über Piule, eine mexikanische Rauschdroge, pp. 1—11.
Henry Wassén, Some Cuna Indian Animal Stories, with Original Texts, pp. 12—34.
Stig Rydén, Primitive Types of the Peruvian Aryballos (with 7 figures), pp. 35—49.
" Brazilian Anchor-Axes (with 13 figures), pp. 50—83.
Walter Kaudern, Anthropological Notes from Celebes (with 5 coloured plates, 29 figures and 4 maps), pp. 84—127.

Ethnological Studies 5, Göteborg 1937. Contents:

- R. J. Hunt*, Mataco-English and English-Mataco Dictionary (with grammatical notes), pp. 1—98.
Walter Kaudern, Two Fish-traps from Celebes (with map and 2 figures), pp. 99—103.
A. Métraux, Easter Island Sanctuaries. Analytic and Comparative Study (with 28 figures), pp. 104—153.

Ethnological Studies 6, Göteborg 1938. Contents:

- Henry Wassén*, Original Documents from the Cuna Indians of San Blas, Panama, as Recorded by the Indians Guillermo Haya and Ruben Pérez Kantule (with 29 figures and 4 coloured plates), pp. 1—178.
- C. G. Santesson*, Noch eine mexikanische »Piule«-Droge. Semina *Rynchosia phaseoloidis* DC., pp. 179—183.

Ethnological Studies 7, Göteborg 1938. Contents:

- Edwin G. Burrows*, Western Polynesia, A Study in Cultural Differentiation (with 17 figures, 8 tables and 20 distribution diagrams), pp. 1—192.
- Robert F. Heizer*, The Plank Canoe of the Santa Barbara Region, California (with 4 figures, 1 map and 1 table), pp. 193—229.

Ethnological Studies 8, Göteborg 1939. Contents:

- Helen C. Palmatary*, Tapajó Pottery (with 58 figures and 1 map), pp. 1—136.
- C. G. Santesson*, Die Babongo-Zwerge und ihr Pfeilgift (with 2 figures), pp. 137—148.
- Walter Kaudern*, C. G. Santesson Dead, pp. 149—150.

PB-0006442-SB
518-11

THE UNIVERSITY LIBRARY
UNIVERSITY OF CALIFORNIA, SANTA CRUZ

This book is due on the last **DATE** stamped below.

50m-6,'67 (H2523a8) 2878

